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MEC299

Design and Fabrication of Portable-Foot Hydraulic Car Jack

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ABSTRACT

Final year project is about Foot-controlled hydraulic jack. this invention is created based a few problems that has been faced by a certain car driver. Especially women and elderly, has a lot of problem when the tire car has become flat. It hard for them to use the provided car jack to lift-up the car. This innovation will make sure the problem can be solve easily. This invention will be first design using CAD software that is Solidworks 2020. After the completion of the design, the fabrication process will take place in UiTM workshop with the supervision of workshop assistant. The result after fabrication should able to lift-up car average with 2 tons and lower. If the fabrication cannot achieve the objective, it will be redesign until it can achieve the objective. This invention will be a very helpful for all people

TABLE OF CONTENT

CHAPTER 1
INTRODUCTION

1.0 INTRODUCTION

This project is basically an improvement and redesign the ready-made hydraulic car jack into a new face and has more mobility.

This project will be targeted people that has no manpower such as women and elderly. This will help them everywhere when they have problem with their car such as flat tire.

1.1 BACKGROUND OF STUDY

Lifting an automobile up to change tyres or reach the car's bottom is frequently required in car repairs and maintenance (cars). Various types of automotive brakes have been designed to lift a car off the ground in this manner. Existing car drives, on the other hand, are typically manually driven and so necessitate significant physical effort on the part of the user. The package is challenging for older individuals, ladies, and disabled persons who are unlucky in bad weather and even at night. Furthermore, the jacks are typically enormous and heavy, making them difficult to store, transport, lift, or transfer into the proper position under the automobile. Furthermore, due to the difficulties in installing and putting up the jack, it is typically not adjustable to be disassembled and readily stored after the car repair is completed.

1.2 PROBLEM STATEMENT

Nowadays, most cars come standard with a scissor car jack. Many individuals claim that using a scissor vehicle jack is tough since it requires a lot of strength and energy. The goal of this project is to create a product that can assist the user with their problem. To address the issue, some study has been conducted to determine how to create a foot-controlled hydraulic automobile jack that is easy, inexpensive, and can conserve energy when used.

Scissor vehicle jacks are difficult to use for the elderly, ladies, and individuals who are ill. Furthermore, to use the jack, the operator must remain in a lengthy bent or crouching position. Working in a bent or squatting position for an extended period of time is not ergonomic for the human body. It will return the problem in due course

This is a precautionary measure in case the screw breaks. Furthermore, available jacks are often enormous and heavy, making them difficult to store, transport, handle, or manoeuvre into the right position beneath a vehicle. Assume automobile jacks must be simple to use for pregnant women or anyone who has a flat tyre in the middle of nowhere. The goal of this project is to confront this issue. A foot-controlled hydraulic car jack with just the hydraulic bottle and pressure box will be created. To utilise the hydraulic automobile jack, the user just presses the pressure box. Different from other jack, some of it need to use hand but this invention just need the user press the pedal at pressure box a few times and the jack will lift up the car.

1.3 OBJECTIVE

The main objective for this project are:

1. To design a foot-controlled hydraulic car jack using CAD software with is Solidworks 2020

2. To fabricate Foot-controlled hydraulic car jack in UiTM workshop.

1.4 SCOPE OF WORK

1. Fabrication process will use a few necessary manufacturing method like cutting and welding

2. Software that has been design the product is Solidwork 2020

3. Fabrication process will be done in in UiTM workshop

4. Use vehicle which is a car with average 1.4 tons for testing to lift it.