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MECHANICAL ENGINEERING COURSE

DIPLOMA PROJECT

DESIGN OF A HYDRAULIC JACK FOR
GARAGES

BY : PETROU SOT. PETROU

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DESIGN OF A HYDRAULIC JACK FOR GARAGES

by

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Project Report

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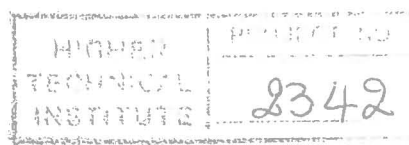
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CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION.

This project is about the design of a device being able to lift require loads of heavy materials. These are materials like mild steel shafts, aluminium gaskets, cast iron cylinders etc. that are impossible to be lift up by any person easily.

In order to do so , the operator has to follow a number of steps which have stated underneath.

(a) first step, is to position the jack in such a way to prevent any accident due to incorrect positioning.

(b) second step, is to adjust the height of the jack.

(c) third step, is to hang the load from the hook in the case of hydraulic crane.

(d) fourth step, is to raise the load up by using a manual pump.

The design and dimensions of the above device must be seriously examined so as to be competitive with similar machines and to provide easy installarions and facilities to be moved, without great effort, if the conditions call for.

Another thing to be always bared in mind, while designing such innovative machines, is the ergonomics of the machine. The controls must be able to be found easily by the operator and the switches must be easy to operate. The position of the contols must be easily reached and must be in such height so that an average person could operate the machine with out any result to it's health. The machine must of course provide facility for emergency (cut-off) switch like all new and old machines (lathe, planning and drilling machines etc).

Machines constructed nowadays must have the advantage to be completely automatic and if possible to inform the operator of what is to take place and what positions the operator should attempt. In a few words, the word "machine" has to be replaced with phrases like "the metallic servant" or even better "the metallic instructor" (don't forget the computers). Of course a metallic servant is all what the hydraulic jack is up to.

As one of the basic things such a machine should possessed is the information at any instand of the load being lift and the height being lift either in metric or imperial system.