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W. T.

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Bahagian Perkhidmatan Pembaca & Rujukan  
Perpustakaan Tun Abdul Razak  
Institut Teknologi MARA  
Shah Alam  
Selangor.

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THE DESIGN OF  
BRAKE FLUID FILLING UNIT

BY

RAHIM BIN ATAN  
I.T.M. SHAH ALAM  
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## PREFACE

This report provides an insight into the use of a pneumatic system in brake bleeding equipment. In fact much of the time was devoted into the study of the design of the pneumatic circuit.

The braking system is one of the most important parts in vehicles. It is extremely essential to prevent leakage and contamination by moisture and air bubbles. The presence of air bubbles in the brake system will lead to ineffective braking as air is compressible. One who drives a car without knowing the condition of the vehicle's brake may endanger one's life.

The "Brake Fluid Bleeding Equipment" will solve these problems in ensuring effective braking. The equipment has been designed and constructed so as to safe guard the driver.

In relation to this, a thorough study of the equipment was carried out and included in this report.

The author of this report sincerely hopes that this project report would be found valuable and useful for designing the equipment. Any constructive criticism will be welcome.

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## INTRODUCTION

The function of Brake Fluid Bleeding Equipment is to extract air from a brake system and introduce brake fluid.

This equipment consists of several major items covering a pneumatic system (the control system) oil tank and vacuum suction nozzle or vacuum pump.

The equipment which is provided with a vacuum suction nozzle is simpler and portable and is used for low capacity operations.

The other type of equipment comes with a vacuum pump that is slightly bulky, but it has the advantage of being mobile. This type of equipment can be used for almost all types of work. It is also operated more quickly and efficiently.

This equipment is pneumatically controlled, and the pneumatic wiring system is specially designed for fully automatic, fast operation and low manufacturing cost. The sequence of operation begins with sucking of air from a brake system to the minimum pressure attainable by a vacuum suction nozzle or vacuum pump. The pressure is synchronised to the VUV pneumatic valve which will allow the final valve to pressurise the oil tank.

One of the most important and interesting devices in the pneumatic circuit is a vacuum generator namely the vacuum suction nozzle. The vacuum in the vacuum suction nozzle is generated by the ejector principle as compressed air flows through its port. The low exhaust noise when blowing can be additionally damped by means of a silencer. The suction force can go up to maximum of 61.72N and it is found to be more economical when compared to the vacuum pump.