

## FABRICATION OF AIR BRAKE SYSTEM USING ENGINE EXHAUST GAS

### SYNOPSIS

The aim is to design and develop a brake system based on exhaust gas is called “AIR BRAKE SYSTEM USING ENGINE EXHAUST GAS”. The main aim of this project is to reduce the work loads of the engine drive to operate the air compressor. In this project, we used exhaust gas from the engine to rotate the generator turbine. Then the power is loaded to the D.C compressor and it is used to the pneumatic cylinder to apply brake.

### INTRODUCTION

This is an era of automation where it is broadly defined as replacement of manual effort by mechanical power in all degrees of automation. The operation remains an essential part of the system although with changing demands on physical input as the degree of mechanization is increased.

Degrees of automation are of two types, viz.

- ✚ Full automation.
- ✚ Semi automation.

In semi automation a combination of manual effort and mechanical power is required whereas in full automation human participation is very negligible.

## NEED FOR AUTOMATION:

Automation can be achieved through computers, hydraulics, pneumatics, robotics, etc., of these sources, pneumatics form an attractive medium for low cost automation. The main advantages of all pneumatic systems are economy and simplicity. Automation plays an important role in mass production.

For mass production of the product, the machining operations decide the sequence of machining. The machines designed for producing a particular product are called transfer machines. The components must be moved automatically from the bins to various machines sequentially and the final component can be placed separately for packaging. Materials can also be repeatedly transferred from the moving conveyors to the work place and vice versa.

Nowadays almost all the manufacturing process is being atomized in order to deliver the products at a faster rate. The manufacturing operation is being atomized for the following reasons.

- × To achieve mass production
- × To increase the efficiency of the plant
- × To reduce the work load
- × To reduce the production cost
- × To reduce the production time
- × To reduce the material handling
- × To reduce the fatigue of workers
- × To achieve good product quality
- × Less Maintenance

## ADVANTAGES

1. It reduces the battery power
2. It increases the engine efficiency
3. It occupies less floor space
4. It reduces the air pollution

## DISADVANTAGES

1. Initial cost is high
2. Need a separate compressor
3. Maintenance cost is high

## APPLICATIONS

1. For automobile application
2. Industrial application

TECHNOFEST