

Seat Belt Operated Automatic Handbrake System

Mrishikesh Shinde¹, Mehul Shinde², Saurabh Suryawanshi³, Abhijeet Tungar⁴, Prof .B.A.Burkule⁵

^{1, 2, 3, 4, 5} Dept of Mechanical Engineering

^{1, 2, 3, 4, 5} Guru Gobind Singh Polytechnic, Nashik, India

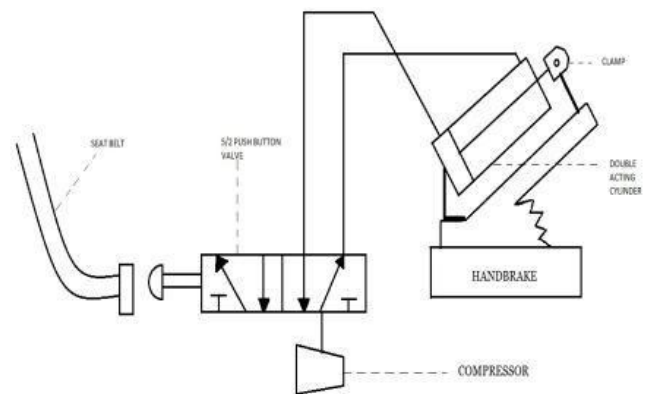
Abstract- In a ground vehicle, mechanical parking brake (Hand brake) unit is a mechanism that used to hold the vehicle stationary either on the even or slope road. It consists of a directly connected to the brake mechanism on one end and to a mechanism that can be actuated by the driver on the other end. This actuating mechanism is often a hand-operated lever on the floor on either side of the driver, or a pull handle located below and, near the steering wheel column or a (foot-operated) located far apart from the other pedals. In order to ensure that a vehicle remains stationary when it is parked at a certain road slope, the driver has to apply sufficient force on the handbrake. Seat belt is implemented in car to ensure drivers safety. The increase in number of loss of life in accidents is due to driver's negligence to wear seat belt though it is strictly forced by law and saves human being. When the seat belt activates the push button type DC valve, an outward stroke is been obtained in the pneumatic cylinder through an air compressor which is used to release the hand brake. Similarly during the retracing stroke of the piston the hand brake is been engaged. We can achieve it by using pneumatic setup along with handbrake

I. INTRODUCTION

The Pneumatics is a section of technology that deals with the study and application of pressurized gas to produce mechanical motion. Pneumatic systems, that are used extensively in industry and factories are commonly plumbed with compressed air or compressed inert gases. This is because a centrally located and electrically powered compressor, that powers cylinders and other pneumatic devices through solenoid valves, can often provide motive power in a cheaper, safety, more flexible, and more reliable way than a large number of electric motors and actuators. Pneumatics also applications in dentistry, construction, of mining, and other areas. Welding, superior insulating qualities and design versatility. The Simplicity of design and control - Machines are easily designed using standard cylinders and other components, and operate via simple on-off control. Reliability iPneumatic systems generally have long operating lives and require little maintenance

II. LITRATURE SURVAY

S. Ekinovic & E. Saric done the project on Optimisation of the composing part of hand brake mechanism in his work is to show an example of 3D modeling and optimization, combined with the design and production of prototype and experimental testing of a very important composing part of the mechanism for the compensating, the aeration in automobile hand brake. The basic notions about purpose, function, buyer's demands, specifics of the hand brake assemble construction are given. The proposal of concept for the development of the assembly, conceived by the buyer, is given as well



III. CONCLUSION

While concluding this report, we feel quite fulfilled in having completed the project assignment well on time, we had enormous practical experience on fulfillment of the manufacturing schedules of the working project model. We are therefore, happy to state that the in calculation of mechanical aptitude proved to be a very use purpose. Although the design criterions imposed challenging problems which, however were overcome by us due to availability of very good reference books.

IV. FUTURE IMPROVEMENTS

Automated hand brake by using electronics control units:

The hand brake developed by us is pneumatically operated. Thus in old hand brake it is needed to give full attention of worker to operate the hand brake during starting

stops the vehicle. This brake can be modified to fully automate pneumatic hand brake by using the pneumatic controls and programming. This automated hand brake can perform any specified work in minimum time, speed, reliably and with high accuracy so that it does not need any regular attention for hand brake.

REFERENCES

- [1] A book on hydraulic and pneumatic control by R.SRINIVASAN JAN 2008 edition.
- [2] www.engineersedge.com
- [3] www.linkedin.org
- [4] A book on automobile engineering by kirupal Singh
- [5] www.howstuffworks.org
- [6] Online Material library available