

Design & Fabrication of Semi Automatic Combined Breaking System:- A Novel Approach

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Abstract- A break is a mechanical device that inhibits motion by absorbing energy from a moving system. It is used for slowing or stopping a moving vehicle, wheel, axle, or to prevent its motion, most often accomplished by means of friction

Brakes are generally applied to rotating axles or wheels, but may also take other forms such as the surface of a moving fluid (flaps deployed into water or air). Some vehicles use a combination of braking mechanisms, such as drag racing cars with both wheel brakes and a parachute, or airplanes with both wheel brakes and drag flaps raised into the air during landing.

A combined braking system (CBS), also called linked braking system (LBS), is a system for linking front and rear brakes on a motorcycle or scooter. In this system, the rider's action of depressing one of the brake levers applies both front and rear brakes. The amount of each brake applied may be determined by a proportional control valve. This is distinct from integrated brakes, where applying pressure to brake pedal only includes application of some front brake

Keywords- Calliper, Hub, Rotor, Piston, Brake Pads

I. INTRODUCTION

A brake is a mechanical device that inhibits motion by absorbing energy from a moving system. It is used for slowing or stopping a moving vehicle, wheel, axle, or to prevent its motion, most often accomplished by means of friction.

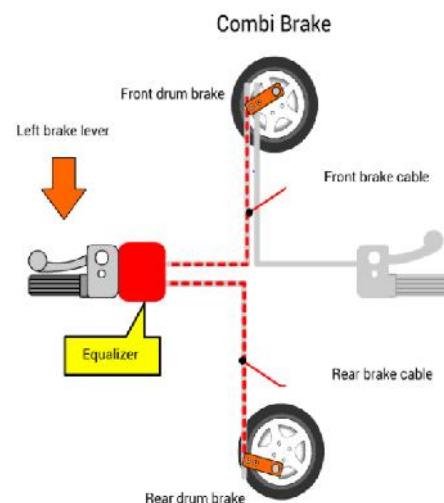
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II. WORKING PRINCIPLE

THE ABOVE SHONE IMAGE IS THE CONSTUCTION OF THE COMB DISC BRAKE SYSTEM.

IN THIA TYPE OF BRAKE WHEN YOU APPLYTHE BRAKE AT THAT TIME THE BOTH FRONT AND REAR WHEEL TOGHTHER GET THE BEAKE AND STOP.



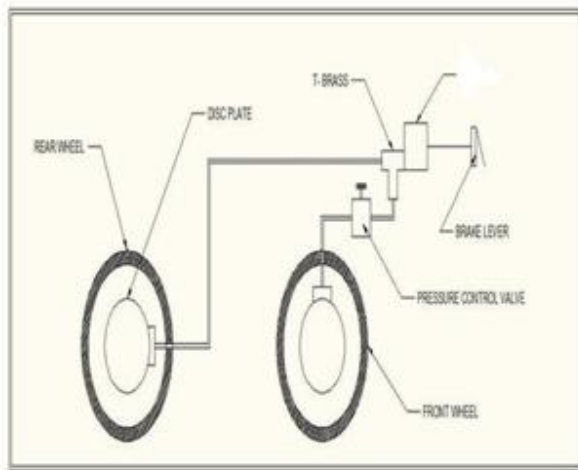
III. MAIN COMPONENTS PROJECT

(1)Calleper:-The job of the caliper is to slow the car's wheels by creating friction with the rotors. ... When you step on the brake, brake fluid from the master cylinder creates hydraulic

pressure on one or more pistons in the brake caliper, forcing the pads against the rotor.

(2)HUB:-heat transfer to the wheel hub. Lambretta were the first manufacturer to use floating ...

(3)Rotor:- The flux generates a magnetic field in the air gap between the stator and the rotor and induces a voltage which produces current through the rotor bars. ... The action of the rotating flux and the current produces a force that generates a torque to start the motor.



IV. SCOPE AND OBJECTIVE

The brakes are one of the most important control components of vehicle. They are required to stop the vehicle within the smallest possible distance and this is done by converting the kinetic energy of the vehicle into the heat energy which is dissipated into the atmosphere.

In our vehicle, two disc brakes are used on the front axle to be more effective and drum brake on rear axle assisting to slow or stop the vehicle instantly after applying the brakes. Tandem master cylinder is used as a master cylinder in our vehicle because the tandem master cylinder transforms applied brake force into hydraulic pressure which is transferred to the wheel units through two separate circuits. This provides residual braking in the event of fluid loss.

V. FUTURE SCOPE

CBS brakes apply braking power to the front and back brakes at the same time.

CBS is generally harder to implement and maintain proper balancing of braking force distribution between the front and rear wheels. Automatically balancing systems tend

to be more complex, prone to early failure, and still may require periodic manual adjustments to make by the user.

CBS are easy to maintain not requiring any specific tools or material.

The safety system for automobile.

VI. CONCLUSION

Here we conclude that the project does work but if some changes are done in the design we can get better output.

VII. ACKNOWLEDGMENT

We are very thankful to Amiraj college of engineering & technology for providing us technical mentoring during research work .

REFERENCES

- [1] Google website and subject references book and you tube video.
- [2] Vallamkonda Arun Kumar ,Setty Kalyan,“**ACTIVE SAFETY BRAKINGSYSTEM**”, ISSN 2250-3153
- [3] Akshat Sharma , “**BRAKING SYSTEM** “, ISSN 2250-1991
- [4] D V Tretsiak¹, S V Kliuzovich¹ , K Augsburg² , J Sandler² , and V G Ivanov², “**Research in hydraulic brake components and operational factors influencing the hysteresis losses**”, DOI: 10.1243/09544070JAUTO673