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ACCIDENTS DUE TO BREAK FAILURE INAUTOMOBILE

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ABSTRACT

The abstract for an article on accidents due to brake failure in automobiles would provide a brief summary of the article's contents. It would likely cover the causes of brake failure in vehicles, the potential consequences of such failures, and strategies for preventing these accidents from occurring. Accidents due to brake failure in automobiles can have serious and even fatal consequences. In this article, we examine the causes of brake failure in vehicles, including mechanical issues, driver error, and environmental factors. We also discuss the potential outcomes of brake failures, such as collisions, injuries, and property damage, and the challenges of investigating and proving liability in these cases. Finally, we explore various approaches to preventing brake failure accidents, such as regular maintenance, safety inspections, driver training, and technological advances like automatic emergency braking. By improving our understanding of the causes and consequences of brake failure accidents, we can take steps to reduce their frequency and severity and enhance the safety of our roads

KEYWORDS: *Brake pedal problem, brake fluid leak, brake booster failure, over heating*

I. INTRODUCTION

Accidents can occur due to brake failure because the brakes are one of the most important safety features of a vehicle. They are responsible for slowing down and stopping the vehicle when necessary. If the brakes fail, the driver may not be able to stop the vehicle in time to avoid a collision, leading to an accident.

Brake failure can occur for several reasons, including:

Wear and tear: Over time, the brake pads and rotors can wear out, reducing the effectiveness of the brakes.

Lack of maintenance: If the brakes are not regularly maintained, they may fail due to issues such as leaking brake fluid, worn brake pads, or corroded brake lines.

Overheating: Brakes can overheat if they are used excessively, such as when driving down a steep hill or in stop-and-go traffic, which can cause the brake fluid to boil and reduce braking effectiveness.

Malfunctioning components: If any component of the brake system, such as the brake calipers or master cylinder, malfunctions, the brakes may fail.

It's important to regularly maintain and inspect your vehicle's brakes to ensure they are in good working condition. If you suspect that your brakes are not working properly, it's essential to have them checked by a qualified mechanic as soon as possible to prevent accidents from occurring.

There are several solutions to help prevent accidents caused by brake failure in automobiles:

Regular maintenance: It's important to regularly maintain your vehicle's brakes, including checking the brake pads and rotors, replacing worn parts,

and flushing the brake fluid. Follow the manufacturers recommended maintenance schedule and have your brakes checked by a qualified mechanic at least once a year.

Brake system upgrades: Upgrading your brake system can help improve braking performance and reduce the risk of brake failure. This can include installing larger brake rotors, high-performance brake pads, or upgrading to a better brake fluid.

Driver education: It's important for drivers to understand how to properly use their brakes and what to do in the event of a brake failure. Drivers should be trained to pump the brakes, use the emergency brake, and downshift to slow the vehicle.

Electronic stability control: Electronic stability control (ESC) is a safety feature that helps prevent accidents by automatically applying the brakes to individual wheels to help maintain control of the vehicle. Many newer vehicles come with ESC as standard equipment.

Automated emergency braking: Automated emergency braking (AEB) is a safety feature that automatically applies the brakes if a collision is imminent, helping to prevent accidents caused by driver error or brake failure.

PRINCIPLE OF BRAKE

The brake system may very well be the most crucial of all the car's systems. Its purpose is to slow down or stop

The safety of the driver, passengers, and pedestrians depends on how the car is moving. The brakes are one of the most crucial (and overworked) sections of the car because the average driver uses them roughly 75,000 times a year (McPhee, 2007). It used to be one of the vehicle's simplest systems back in the day. The system that has developed over time is no longer straightforward as a result of advancements. If the brakes As pressure is applied, friction occurs between the brake shoes or pads and the braking drum or rotor, converting kinetic energy into thermal energy. The heat is dissipated via the cooling of the brakes.

as the car starts to slow down. The First Law of Thermodynamics, also referred to as the law of Conservation of Energy, governs everything in this (Zammit, 1987). Energy cannot be created or destroyed, according to this law; it can only be changed from one form to another. While using brakes, kinetic energy is transformed into thermal energy.

Drum brakes and disc brakes are the two main types of brakes used in modern automobiles.
The brake is a tool used to slow down or stop a vehicle's wheel from rotating.
It's important to remember that no safety feature or maintenance program can completely eliminate the risk of accidents caused by brake failure. However, by taking these precautions, you can reduce the risk and help keep yourself and other drivers safe on the road.

Brakes are an essential safety feature in automobiles, and they work by converting the kinetic energy of a moving vehicle into heat energy, which is then dissipated into the air. Here's a brief overview of how brakes work in automobiles:

Types of brakes: There are two main types of brakes used in automobiles: disc brakes and drum brakes. Disc brakes are more commonly used in modern vehicles, while drum brakes are still used in some older vehicles and on the rear wheels of some modern vehicles.

Brake components: The main components of a brake system include the brake pedal, master cylinder, brake lines, brake calipers, brake pads, and brake rotors (in disc brakes) or brake drums (in drum brakes).

Hydraulic pressure: When the brake pedal is depressed, it creates hydraulic pressure in the brake lines, which is transmitted to the brake calipers or brake drums. This pressure causes the brake pads or brake shoes to press against the brake rotors or brake drums, creating friction and slowing down or stopping the vehicle.

Disc brakes: In disc brakes, the brake caliper squeezes the brake pads against the brake rotor, which is attached to the wheel hub. The friction between the brake pads and rotor slows down or stops the rotation of the wheel.

Drum brakes: In drum brakes, the brake shoes press against the brake drum, which is attached to the wheel hub. The friction between the brake shoes and drum slows down or stops the rotation of the wheel.

Anti-lock brake system (ABS): Modern vehicles are equipped with an anti-lock brake system, which prevents the wheels from locking up during hard braking, reducing the risk of skidding and loss of control. ABS uses sensors to detect wheel speed and modulates brake pressure to each wheel individually to maintain traction and stability.

In summary, brakes work by converting the kinetic energy of a moving vehicle into heat energy through friction, using hydraulic pressure to apply force to the brake pads or brake shoes, which press against

the brake rotors or brake drums. Proper maintenance and timely replacement of brake components are crucial for ensuring the effectiveness and safety of the brake system in an automobile.

Brakes are essential for automobiles because they provide a means for the driver to slow down or stop the vehicle when necessary. Without brakes, it would be difficult or impossible for drivers to control their speed and avoid accidents.

When a driver presses the brake pedal, a hydraulic system is activated that causes the brake pads or shoes to press against the brake rotors or drums, creating friction that slows down or stops the wheels. This slows down the vehicle and allows the driver to maintain control.

There are different types of brakes used in automobiles, including disc brakes and drum brakes. Disc brakes use a caliper to squeeze brake pads against a rotor, while drum brakes use brake shoes that press against a rotating drum. Both types of brakes are designed to provide reliable and consistent stopping power, even under challenging conditions like wet or slippery roads.

In summary, brakes are essential for automobiles because they help drivers maintain control of their vehicles and avoid accidents. Without brakes, driving would be extremely dangerous and unpredictable, making it virtually impossible to travel safely on roads and highways.

CONCLUSION

In conclusion, car accidents can be fatal and have a significant financial impact. High intangible costs were also incurred by accident (i.e. pain, grief and suffering). The report suggests that law enforcement organisations make sure that motorists maintain their cars, especially the brakes. Also, the National Road Safety Commission (NRSC) and the Driver and Vehicle Licensing Authority (DVLA) ought to step up their efforts to encourage regular brake servicing checks across the nation. Brake servicing cards should be introduced by the Motor Traffic and Transport Union (MTTU) division of the Ghana Police Service, and this rule should be implemented by the police. Qualified workshops should deliver these cards to drivers after servicing their brakes.

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