



# **SNS COLLEGE OF TECHNOLOGY**

**(An Autonomous Institution)**

**COIMBATORE-35.**



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Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai.

## **DEPARTMENT OF AUTOMOBILE ENGINEERING**

**COURSE NAME : 19AUB202 – AUTOMOTIVE SYSTEMS**

**II YEAR / III SEMESTER**

**Unit 5 – Braking System**

**Topic : Disc Brake**



# DISC BRAKE



- ❖ A disc brake is a type of braking system used in vehicles to slow down or stop their motion.
- ❖ It's a common type of brake system used in modern cars, motorcycles, and other wheeled vehicles.
- ❖ Disc brakes offer several advantages over traditional drum brakes, including better heat dissipation, lighter weight, and more effective stopping power.



# COMPONENTS



## ❖ Rotor (Disc):

- The rotor, or disc, is a flat, circular metal component attached to the wheel hub.
- When the brakes are applied, calipers squeeze brake pads against the rotor to create friction and slow down the vehicle.

## ❖ Caliper:

- The caliper is a device that houses the brake pads and can move back and forth.
- When the brake pedal is pressed, hydraulic or mechanical force is applied to the caliper, causing it to squeeze the brake pads against the rotor.



# COMPONENTS



## ❖ Brake Pads:

- Brake pads are friction materials attached to the caliper.
- They are the components that make direct contact with the rotor, creating the friction necessary for braking.

## ❖ Brake Lines:

- Hydraulic brake lines or brake hoses connect the brake pedal to the calipers.
- When the brake pedal is pressed, brake fluid is forced through these lines, applying pressure to the caliper pistons and causing the brake pads to squeeze against the rotor.



# COMPONENTS



## ❖ Piston:

- In hydraulic disc brakes, calipers contain pistons that are forced outward when brake fluid pressure is applied.
- The movement of the pistons squeezes the brake pads against the rotor, creating friction and slowing down the vehicle.



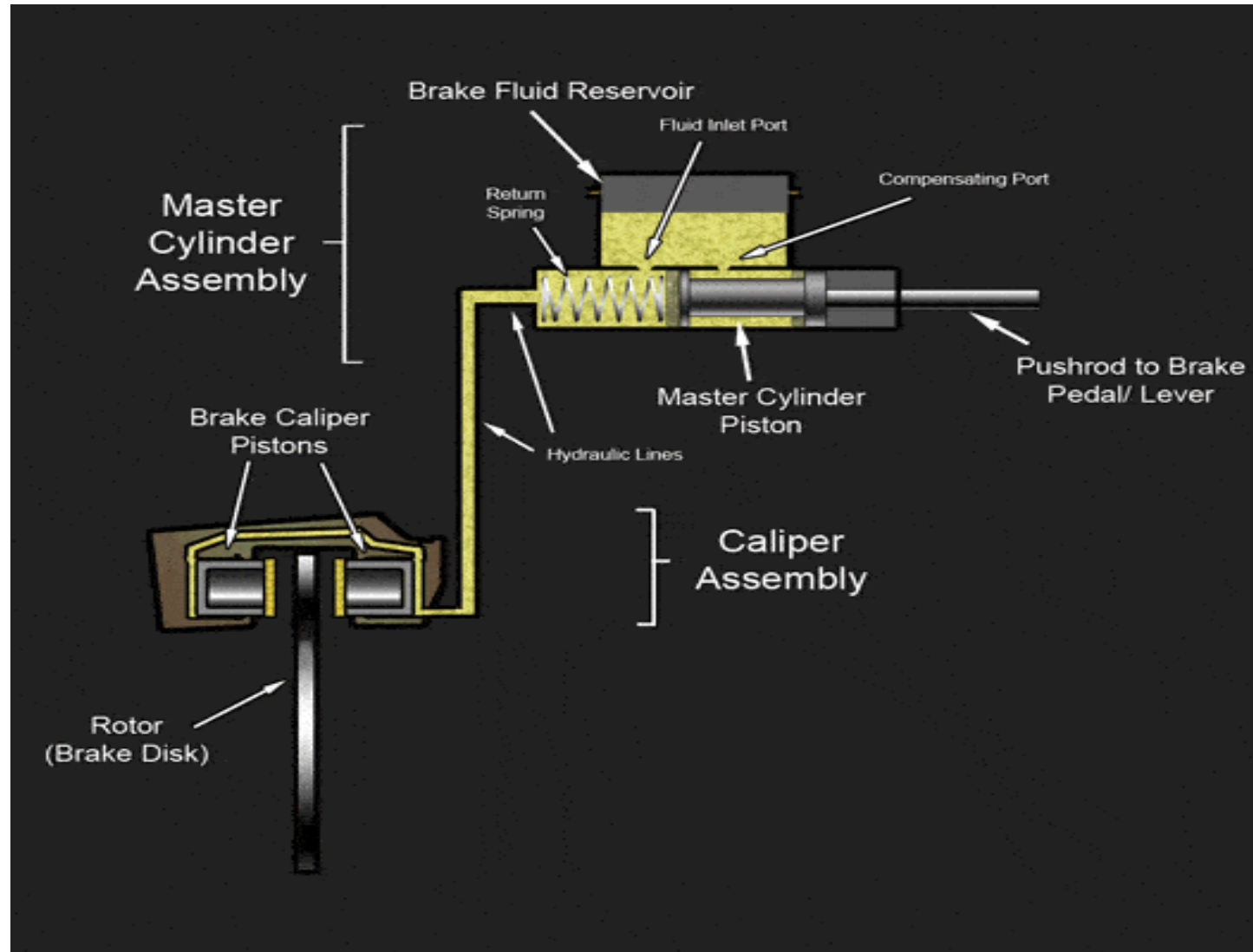
# WORKING



- ❖ When the driver presses the brake pedal, hydraulic pressure is generated in the brake lines.
- ❖ The hydraulic pressure causes the caliper pistons to move, pressing the brake pads against both sides of the rotor.
- ❖ The friction between the brake pads and the rotating rotor generates heat, converting kinetic energy into thermal energy
- ❖ The frictional force slows down the rotation of the rotor, and consequently, the vehicle.



# DISC BRAKE









# ADVANTAGES



- ❖ Disc brakes dissipate heat more effectively than drum brakes, making them less prone to overheating.
- ❖ Disc brakes are generally lighter than drum brakes, contributing to better fuel efficiency.
- ❖ They provide more consistent braking performance, especially under heavy or repeated braking.
- ❖ Disc brakes are easier to inspect and maintain compared to drum brakes.
- ❖ The open design of disc brakes allows for better cooling, reducing the risk of brake fade.



# DISC VS DRUM BRAKE



DISC BRAKE	DRUM BRAKE
It uses disc shaped rotors	It uses cylindrical drum
It uses a clamp called caliper to hold the friction 'pads' against rotor disc	It uses expanding hydraulic cylinder to press the friction material (shoes) against the inside of rotating drum.
Good braking even at high temperature	Reduced performance at high temp.
Better heat dissipation	Slower heat dissipation
Fast braking, better braking force	Slow braking
Cost is more	Cheaper than disc brake
Generally Used for modern bikes, cars	Used for trucks, bus, scooter



THANK YOU !!!