Fundamentals of Automobile systems Lab

Subject overview:

The subject "Fundamentals of Automobile systems" provides fundamental knowledge of key automotive mechanical systems, parts and their integration. A vehicle is composed of basic mechanical parts and devices making up its systems; each of them fulfills a specific function such as Fuel supply system, Transmission system, Suspension system, Braking system, Steering system, Cooling system, Electrical system, Exhaust system.



FRONT WHEEL DRIVE SYSTEM

Front wheel drive systems are those in which the front wheels of the vehicle are driven. The most popular layout used in cars today is the frontengine, front-wheel drive, with the engine in front of the front axle, driving the front wheels.





Rear-wheel drive system places the engine in the front of the vehicle and the driven wheels are located at the rear. Nearly all motorcycles and bicycles use rear-wheel drive.

REAR WHEEL DRIVE SYSTEM

CONSTANT MESH GEAR BOX

Constant mesh gear box is one type of motor vehicle transmission that can automatically change gear ratios as the vehicle moves, freeing the driver from having to shift gears manually. In this gear box all or most of the gears are always in mesh with one another.



SYNCHROMESH GEAR BOX



The synchromesh gear box transmission synchronizes the speeds of mating parts before they engage to allow the selection of gears without their clashing. It employs a combination metal-to-metal friction cone clutch and a dog or gear positive clutch.

AIR BRAKING SYSTEM

A brake is a mechanical device which inhibits motion. Air brakes system is a type of friction brake for vehicles in which compressed air pressing on a piston is used to apply the pressure to the brake padel needed to stop the vehicle. Air brakes are used in large heavy vehicles.



POWER STEERING SYSTEM



Steering allow vehicle to follow the desired course. Power steering is a system for reducing the steering effort on cars by using an external power source to assist in turning the wheels.

RACK AND PINION STEERING SYSTEM



A rack and pinion is a type of linear actuator that comprises a pair of gears which convert rotational motion into linear motion. A rack and pinion is commonly found in the steering mechanism of cars or other wheeled, steered vehicles.

REAR SUSPENSION SYSTEM



Suspension systems keeping vehicle occupants comfortable and reasonably well isolated from road noise, bumps, and vibrations etc. The leaf spring rear suspension is the oldest suspension used for mobile devices with wheels.

DIFFERENTIAL AND REAR AXLE

The differential gearing allows the outer drive wheel to rotate faster than the inner drive wheel during a turn. In a live-axle suspension system, the axles serve to transmit driving torque to the wheel, as well as to maintain the position of the wheels.



	FULLY FLOATING DIFFERENTIAL AND REAR WHEEL
	Fully floating differential is reserved for vehicles that are designed to carry heavy loads. For a full- floater system, the axle shaft only serves to transmit the rotational torque from the differential out to the wheel. Many large trucks and trailers utilize a full floating axle.
	MULTIPLATE CLUTCH
MUL-TIPLATE CLAUTCH	A clutch is a mechanical device that provides for the transmission of power from the driving member to the driven member. The clutch having more than three discs is referred as multi plate clutch. Multiplate clutches are mostly commonly in two wheelers and three wheelers due to compact in size

DIAPHRAM CLUTCH

Diaphram clutch used to produce the required pressure for engaging it, a form of diaphragm is employed in place of coil springs. The diaphragm spring is significantly noticeable to the driver, because he needs to apply less pressure on the pedal due to the lower engaging force.



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MULTIPLATE CLUTCH



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