

GOVERNMENT ENGINEERING COLLEGE, DAMAN
DEPARTMENT OF MECHANICAL ENGINEERING
AUTOMOBILE & IC ENGINE LABORATORY

FOUR STROKE DIESEL ENGINE TEST RIG



Basic Details: -

Engine: Single Cylinder, Four Stroke, Vertically Mounted, Water Cooled, Self-Start, Diesel Engine with a power rating of 5-HP at 1500 RPM

Loading: Eddy Current Dynamometer

Fuel Measuring System: A Fuel Tank equipped with a Glass Burette and a Three-Way Cock

Air Intake Measuring System: Air Tank fitted with Orifice and Manometer

Gas Calorimeter: Exhaust Gas Calorimeter made of Stainless Steel to calculate the amount of Heat Carried away by the Exhaust Gases. The Calorimeter is insulated with Ceramic Wool and Cladded by Aluminium Foil.

Temperature Measurement: Digital Temperature Indicator with Multi-Channel Switch

Temperature Sensor: Thermocouple K-Type



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SINGLE CYLINDER TWO STROKE PETROL ENGINE



Basic Details: -

Engine: Single Cylinder, Two Stroke, Vertically Mounted, Air Cooled, Manual-Start, Petrol Engine

Loading: Eddy Current Dynamometer (Torque Measurement by Spring Balance) Fuel Measuring System: A Fuel Tank equipped with a Glass Burette and a Three-Way Cock

Air Intake Measuring System: Air Tank fitted with Orifice and Manometer Gas Calorimeter: Exhaust Gas Calorimeter made of Stainless Steel to calculate the amount of Heat Carried away by the Exhaust Gases. The Calorimeter should be insulated with Ceramic Wool and Cladded by Aluminum Foil.

Temperature Measurement: Digital Temperature Indicator with Multi Channel Switch

Sensor: Thermocouple K-Type

RPM Indicator: Digital Tachometer



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MULTI CYLINDER FOUR STROKE PETROL ENGINE
APPARATUS



Basic Details: -

Engine: Four Cylinder, Four Stroke, Vertically Mounted, Water Cooled, Self-Start, Nos 171100 Petrol Engine

Loading: Rope Brake Dynamometer

Fuel Measuring System: A Fuel Tank equipped with a Glass Burette and a Three Way Cock

Air Intake Measuring System: Air Tank fitted with Orifice and Manometer Gas Calorimeter: Exhaust Gas Calorimeter made of Stainless Steel to calculate the amount of Heat Carried away by the Exhaust Gases. The Calorimeter should be insulated with Ceramic Wool and Cladded by Aluminum Foil.

Temperature Measurement: Digital Temperature Indicator with Multi-Channel Switch

Temperature Sensor: Thermocouple K-Type



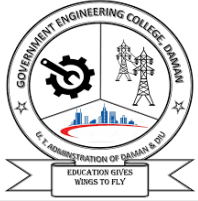
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POWER TRANSMISSION SYSTEM



Basic Details: -

- Electrically operated
- Demonstrates complete power transmission system of a rear-wheel-drive vehicle



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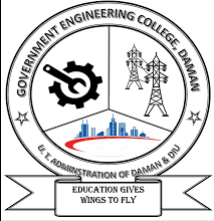
IGNITION SYSTEM AND IGNITION COIL



Basic Details: -

Construction: The Model should be made up of OEM used parts such as Switches, Ignition Coil, Distributor, Spark Plugs, High Tension Cables, Battery for Power Supply and necessary Wirings.

Working: By Switching On the circuit and Rotating the Distributor, Sequential Sparks must be visible at spark plug.



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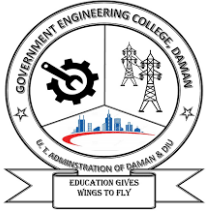
MAGNETO IGNITION SYSTEM FOR 2-WHEELER



Basic Details: -

Construction: The Model should be made up of OEM used parts such as Switches, Electronic Ignition Coil, Spark Plug, Pick-up Coil, High Tension Cables, Battery for Power Supply and necessary Wirings.

Working: By Switching On the circuit and Rotating the Pick-up Coil, Spark must be visible at Spark plug



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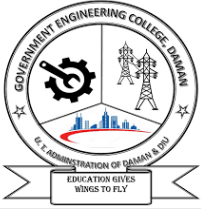
ELECTRONIC IGNITION SYSTEM FOR 2-WHEELER



Basic Details: -

Construction: The Model should be made up of OEM used parts such as Switches, Electronic Ignition Coil, Spark Plug, Pick-up Coil, High Tension Cables, Battery for Power Supply and necessary Wirings.

Working: By Switching On the circuit and Rotating the Pick-up Coil, Spark must be visible at Spark plug



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STEERING SYSTEM

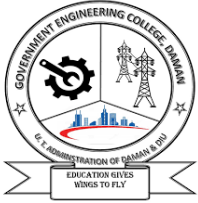


Basic Details: -

The Model of Steering System must be made of original OEM used components such as Steering Wheel, Steering Column, Steering Gearbox, Steering Arms, Electric Motor, Battery for Power Supply and other necessary wirings and Switches. The model must rest on the steel structure with appropriate mountings and supports as in a vehicle.

Working:

The Power to the Steering System should be supplied by electric motor of required capacity. On supplying electric power, electric motor must work and on rotating the steering wheel, the steering arms must travel in appropriate direction.



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SYNCHROMESH GEAR BOX

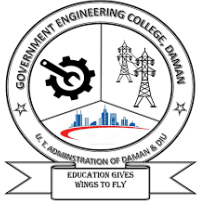


Basic Details: -

Synchromesh gearbox is the latest type of manual transmission gearbox. In this gearbox, lay shaft gears are in constantly meshing with the gears on the output shaft as like a constant mesh gearbox. But in Synchromesh gearbox, Instead of Dog clutch, Synchronizer Ring and Hub is used. Synchronizer Ring helps in bring the all shaft speed to equal and Synchronizer Hub helps in smoothly engage the gears. Synchromesh gearbox is invented by Earl Thompson in 1918.

Synchromesh Gearbox Is consists of the following key components: -

- | | |
|--------------------------|----------------------|
| 1. Engine Shaft | 6. Cone |
| 2. Lay Shaft | 7. Synchronizer Hub |
| 3. Output Shaft | 8. Sliding Sleeve |
| 4. Gears on Lay shaft | 9. Synchronizer Ring |
| 5. Gears on Output shaft | |



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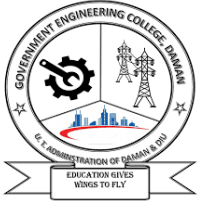
DIESEL FUEL SUPPLY SYSTEM



Basic Details: -

Construction: The Model should be made up of OEM used parts such as Fuel Tank, Fuel Filter, Fuel Injection Pump, Fuel Injector with Atomizer.

Working: By Switching On the circuit, the Fuel Pump will supply the Pressurized Fuel from Fuel Tank to the Fuel Injector where the fuel spray can be visualized.



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MODEL OF ENGINE COOLING SYSTEM



Basic Details: -

The Model should demonstrate the Cooling System of an Internal Combustions Engine and made up of OEM used parts such as Radiator, Radiator Fan, Water Pump and Hose Pipes.

The Components should be mounted on Wooden Base.