

Automotive Trainer System



- + LIVE ENGINE
- + SECTIONED AND PRACTICE ENGINE
- + ELECTRICAL SYSTEM
- + PARTS SYSTEM

The Company



Pudak is a name of typical Javanese flower known for pleasant odor and one of many special flower of Indonesia.

Pudak Scientific was founded in 1978 in Bandung. Bandung is a city with favorable environments which are premises for various industries, numerous schools, prominent universities and research institutes and in return provides qualified human resources for up to date development.

From the beginning Pudak Scientific directed itself as partner in educational equipment which developing, manufacturing and distributing various educational products and systems, for general schools, vocational and training schools, higher education institutes and universities.



In our 3.2 hectares plant area and approx.12.000 m² building for administration, manufacturing, warehouse facility and R&D department, our 400 highly qualify staff and experts combined with modern manufacturing process and management producing high quality products and services with competitive price.



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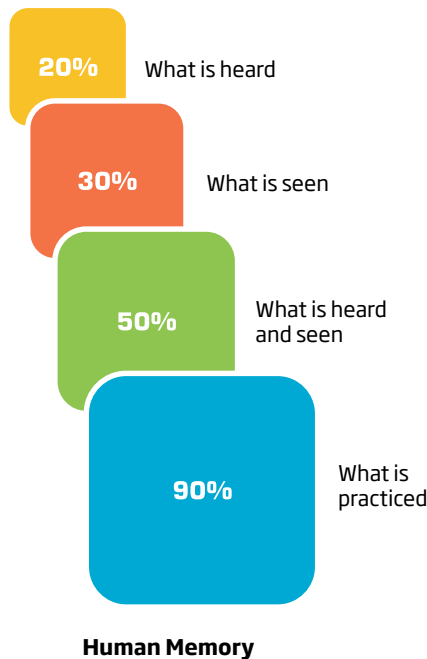
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Put More Hands-on Experience in Your Educational System



Knowledge, especially skills cannot be acquired by only reading books or simply listening to verbal explanation. It is always easier for students to learn something actual more than in the form of words and abstract ideas. This where educational and training equipment plays big role in the efforts towards effective training.

Automotive Training System

Pudak Scientific has been developing the **Automotive Training System (ATS)** for years, a series of models designed to show in the most effective manner possible the functional principles of the system upon which an automobile depends on its operation.

ATS provides direct and active approach in **learning by doing**. Creating an easy demonstration setup or experiments conducts by trainee in systematically way to learn and discover basic to complex system, theoretical and functional principle of automotive engineering.

ATS feature a series of individual unit or system of various models which categorize as follows:

LIVE ENGINE

Fully operating units mounted on steel frames. The units supplied complete with all ancillaries and necessary instrumentation in clean and runnable condition to enable trainee to perform automotive engine operation training.

SECTIONED AND PRACTICE ENGINE

Sectioned engine which exposed most internal operation details, so that the operation of its internal components, mechanism and etc. may be observed. All major sectioned parts are painted and color coded for easy identification. Units are mounted on the steel frame. Practice engine units are non working engines for carried out exercises in disassembly and reassembly and to allow close examination of the parts.

ELECTRICAL SYSTEM

Electrical system forms an important part of any modern automobile. Set of trainer use for automotive electrical system training comprise of wiring system, preheating system, ignition system. Units are combination of functional with sectioned parts.

PARTS SYSTEMS

Set of trainer comprises of engine starter system, charging system, fuel pump system, hydraulic system, injection pump system, clutch and transmission, differential and axles, suspension and steering system. Units are combination of functional with sectioned parts.

ATS Features

FRAME

The use of thick tubular steel pipe and steel frame welded for sturdy frame construction. Some frame utilizes 360° rotating clamp device or rotating stand with locking pin device. Frames are powder coated and equipped with drip pan and lockable castor wheels.

ENGINE AND PARTS

ATS are based on original automotive components of Japan, Korea, China, Malaysia and Indonesian vehicle manufacture brand. The units can be selected from completely new or completely rebuild in clean and running or functioning condition.

Sectioned engines and parts are carefully machined cut-away according to its structures, oil and water circulation, components movement and mechanism, in a manner which shows all major components of the engine.

All critical parts and components carefully tested for functionality, durability and compliance with our quality standards.



SAFETY FEATURES

We are taking a good consideration for safety to ensure safe handling and training. Engines and parts are securely mounted to the frame. Every rotating and heat producing parts is covered with safety guards. Rotating clamp device on the frame is secured with locking pins. The electrical input is fused protected.

OPERATIONAL AND SERVICE WORKSHOP MANUALS

Carefully compiled operational and workshop manuals are one of the fundamentals for the optimal use of ATS. The manuals are prepared in step-by step instruction to guide the trainee conducting the experiment, and help the student to develop their understanding of the topic. The manual helps to reduces preparation time and conducting experiments and ensures successful and effective results.

COMPETITIVE AND COST EFFECTIVE

The highly in-house manufacturing process with the CNC combining with cost effective manufacturing process, ensure the consistent of high quality and cut production cost, which in return provide competitive price advantages for the customer.

GUARANTEE

All of our ATS products are tested and covered with 1 full year product guarantee. Repairs are carried out in the factory or on-site with guided self repairing.



The Unit is consist of recondition and/or brand new parts

2-STROKE MOTORCYCLE ENGINE, LIVE

OT 100

- + Live motorcycle with functional engine, electrical system, drive train system for skills training in the operation, tuneup, maintenance, repair, overhaul and construction of a 2-stroke motorcycle.
- + The unit is mounted on specially designed rotating stand with drip pan.

Specifications

- Complete engine, transmissions, fuel and oil supply container, exhaust silencer (muffler), ignition system.

- Controller for throttle is mounted on simulated handles bar complete with cable set.

- Number of cylinder : 1

- Type of engine : 2 stroke

- Displacement : 100-125 cc

- Ignition : CDI

- Starting system : Kick or electric

- Battery : 12V (included)



The Unit is consist of recondition and/or brand new parts

4-STROKE MOTORCYCLE ENGINE, LIVE

OT 101

- + Live motorcycle with functional engine, electrical system, drive train system for skills training in the operation, tune-up, maintenance, repair, overhaul and construction of a 4-stroke motorcycle.
- + The unit is mounted on specially designed rotating stand with drip pan.

Specifications

- Complete engine, transmissions, fuel and oil supply container, exhaust silencer (muffler), ignition system.

- Controller for throttle is mounted on simulated handles bar complete with cable set.

- Number of cylinder : 1

- Type of engine : 4 stroke

- Displacement : 100-125 cc

- Ignition : CDI

- Starting system : Kick or electric

- Battery : 12V (included)



The Unit is consist of recondition and/or brand new parts

4-STROKE MOTORCYCLE ENGINE WITH AUTOMATIC TRANSMISSION, LIVE

OT 101A

- + Live motorcycle with functional engine, electrical system, automatic transmission system for skills training in the operation, tune-up, maintenance, repair, overhaul and construction of a motorcycle.
- + The unit is mounted on on a sturdy tubular steel.

Specifications

- Complete 4-stroke engine, automatic transmissions, fuel and oil supply container, exhaust silencer (muffler), ignition system.
- Controller for throttle are mounted on simulated handles bar complete with cable set.
- Number of cylinder : 1
- Type of engine : 4 stroke
- Displacement : Approx 150 cc
- Ignition : CDI
- Starting system : Kick or electric
- Battery : 12V (included)

VESPA MOTORCYCLE ENGINE, LIVE

OT 102

- + Live motorcycle with functional engine, electrical system, drive train system for skills training in the operation, tune-up, maintenance, repair, overhaul and construction of a motorcycle.
- + The unit is mounted on specially designed rotating stand with drip pan.

Specifications

- Complete Vespa engine, transmissions, fuel and oil supply container, exhaust silencer (muffler), ignition system.
- Controller for throttle, clutch and gear shift lever are mounted on simulated handles bar complete with cable set.
- Number of cylinder : 1
- Type of engine : 2 stroke
- Displacement : Approx 150 cc
- Ignition : CDI
- Starting system : Kick or electric
- Battery : 12V (included)



The Unit is consist of recondition and/or brand new parts

CAR TRAINING STAND

- + The driveable trainer with fully operational engine, electrical system, drive train system for skills training in the operation, tune-up, maintenance, repair, overhaul and construction of a car.
- + Constructed from original powered car and chassis without body.
- + Completed with driver seat.



Specifications

- The trainer incorporated all major systems and components, such as : Chassis, electrical and lighting system, instrument panel, brake system, engine, transmission, cooling, steering, suspension, rear axle, front end, wheel and tires, and exhaust system.
- The chassis equipped with adjustable height lockable castor wheel for mobility.

| | Car Training Stand, Petrol Engine (OT 103) | Car Training Stand, Diesel Engine (OT 103A) | Car Training Stand, Petrol Engine EFI (OT 103B) |
|----------------------|---|--|---|
| • Engine | 4-cylinder in-line, 4-stroke Petrol engine | 4-cylinder in-line, 4-stroke Diesel engine | 4-cylinder in-line, 4-stroke Petrol engine |
| • Displacement | 1000-2000 cc, 8-16 Valves, (Over Head Valve or Double Over Head Camshaft) | 2000-2500 cc, 8-16 Valves, (Over Head Valve) | 1000-2000 cc, 8-16 Valves, (Over Head Valve or Double Over Head Camshaft) |
| • Transmission | Manual 5 forward and 1 reverse | Manual 5 forward and 1 reverse | Manual 5 forward and 1 reverse |
| • Battery Charger | Alternator | Alternator | Alternator |
| • Type of Drivetrain | RWD (Rear Wheel Drive) | RWD (Rear Wheel Drive) | RWD (Rear Wheel Drive) |
| • Battery | 12V, 40Ah (included) | 12V, 70Ah (included) | 12V, 40Ah (included) |
| • Cooling system | Liquid cooled with radiator | Liquid cooled with radiator | Liquid cooled with radiator |
| • Brake system | Front Diskbrake and Rear Drumbrake | Front Diskbrake and Rear Drumbrake | Front Diskbrake and Rear Drumbrake |

The Unit is consist of recondition and/or brand new parts



- 10 liter fuel tank with fuel pump.
- Exhaust manifold and silencer.
- Instrument panel consist of key ignition switch, amperemeter, oil pressure gauge, water temperature gauge and tachometer.
- Exhaust manifold and silencer.
- Supplied with operation and service workshop manual.

The Unit is consist of recondition and/or brand new parts

PETROL ENGINE TRAINING, ROTATING STAND OT 104

- + For training skills in disassembly, reassembly, engine operation, tune-up, repair & maintenance and overhaul.
- + Engine without transmission, in running condition.
- + Mounted on a sturdy tubular steel stand equipped with 360° rotating clamp device in four position locking pin and lockable castor wheel for mobility.

Specifications

| | |
|---|--|
| • Engine | : 4-cylinder in-line, 4-stroke |
| • Fuel system | : Carburetor |
| • Displacement | : 1.000-1.600 cc |
| • Fuel | : Petrol |
| • Valves | : OHV (Over Head Valve) |
| • Ignition system | : CDI |
| • Battery | : 12V, 50 Ah (included) |
| • Cooling system | : Liquid cooled with radiator and thermostat |
| • Built in flywheel guard, radiator guard for safety. | |

Model OT 104A - Petrol Engine EFI (Electronic Fuel Injection) Training, Rotating Stand



- Instrument panel consist of key ignition switch, amperemeter, oil pressure gauge, water temperature gauge and tachometer.
- Supplied with operation and service workshop manual.

The Unit is consist of recondition and/or brand new parts

DIESEL ENGINE TRAINING, ROTATING STAND OT 105

- + For training skills in disassembly, reassembly, engine operation, tune-up, repair & maintenance and overhaul.
- + Engine without transmission, in running condition.
- + Mounted on a sturdy tubular steel stand equipped with 360° rotating clamp device in four position locking pin and lockable castor wheel for mobility.

Specifications

| | |
|---|--|
| • Engine | : 4-cylinder in-line, 4-stroke |
| • Capacity | : 2.000-2.500 cc |
| • Fuel | : Diesel Fuel |
| • Valves | : OHV (Over Head Valve) |
| • Ignition system | : Glow plug with Indirect Injection |
| • Battery | : 12V, 70 Ah (included) |
| • Cooling system | : Liquid cooled with radiator and thermostat |
| • Built in flywheel guard, radiator guard for safety. | |
| • 10 liter fuel tank with fuel pump. | |
| • Exhaust manifold and silencer. | |



- Instrument panel consist of key ignition switch, amperemeter, oil pressure gauge, water temperature gauge and tachometer.
- Built in flywheel guard, radiator guard for safety.
- 10 liter fuel tank with fuel pump.
- Exhaust manifold and silencer.
- Supplied with operation and service workshop manual.

The Unit is consist of recondition and/or brand new parts

PETROL ENGINE, 4 CYLINDERS, WITH TRANSMISSION

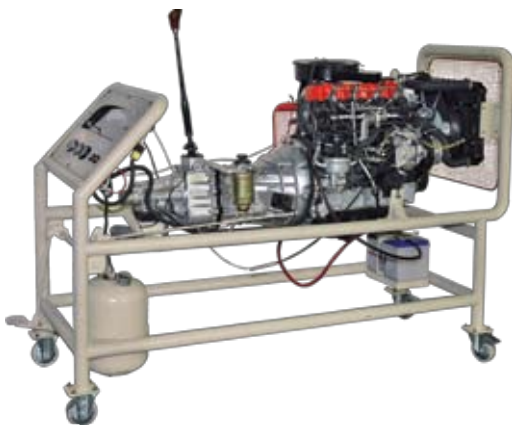
OT 106

- + The trainer is fully operating common petrol engine and transmission for training skills in observing engine operation, tune-up and gear shift transmission.
- + The trainer mounted on welded tubular steel frame with lockable castor wheel for mobility.

Specifications

| | |
|--------------------------------|--|
| • Engine | : 4-cylinder in-line, 4-stroke |
| • Fuel system | : Carburetor |
| • Displacement | : 1.000-1.600 cc |
| • Fuel | : Petrol |
| • Valves | : OHV (Over Head Valve) |
| • Ignition system | : CDI |
| • Battery | : 12V, 50 Ah (included) |
| • Cooling system | : Liquid cooled with radiator and thermostat |
| • 5 speed manual transmission. | |

Model OT 106A - Petrol Engine EFI (Electronic Fuel Injection), 4 Cylinders, with Transmission



- 10 liter fuel tank with fuel pump.
- Instrument panel consist of key ignition switch, amperemeter, oil pressure gauge, water temperature gauge and tachometer.
- Exhaust manifold and silencer.
- Supplied with operation and service workshop manual.

The Unit is consist of recondition and/or brand new parts

DIESEL ENGINE, 4 CYLINDERS, WITH TRANSMISSION

OT 107

- + The trainer is fully operating common petrol engine and transmission for training skills in observing engine operation, tune-up and gear shift transmission.
- + The trainer mounted on welded tubular steel frame with lockable castor wheel for mobility.

Specifications

| | |
|---|--|
| • Engine | : 4-cylinder in-line, 4-stroke |
| • Capacity | : 2.000-2.500 cc |
| • Fuel | : Diesel Fuel |
| • Valves | : OHV (Over Head Valve) |
| • Ignition system | : Glow plug with Indirect Injection |
| • Battery | : 12V, 70 Ah (included) |
| • Cooling system | : Liquid cooled with radiator and thermostat |
| • 5 speed manual transmission. | |
| • Built in flywheel guard, radiator guard for safety. | |



- Instrument panel consist of key ignition switch, amperemeter, oil pressure gauge, water temperature gauge and tachometer.
- 10 liter fuel tank with fuel pump.
- Exhaust manifold and silencer.
- Supplied with operation and service workshop manual.

The Unit is consist of recondition and/or brand new parts

PETROL ENGINE, 4 CYLINDERS, WITHOUT TRANSMISSION

OT 108

- + The trainer is fully operating common petrol engine for training skills in observing engine operation and tune-up.
- + The trainer mounted on welded tubular steel frame with lockable castor wheel for mobility.

Specifications

| | |
|---|--|
| • Engine | : 4-cylinder in-line, 4-stroke |
| • Fuel system | : Carburetor |
| • Displacement | : 1.000-1.600 cc |
| • Fuel | : Petrol |
| • Valves | : OHV (Over Head Valve) |
| • Ignition system | : CDI |
| • Battery | : 12V, 50 Ah (included) |
| • Cooling system | : Liquid cooled with radiator and thermostat |
| • Built in flywheel guard, radiator guard for safety. | |

Model OT 108A - Petrol Engine EFI (Electronic Fuel Injection), 4 Cylinders, without Transmission



- Instrument panel consist of key ignition switch, amperemeter, oil pressure gauge, water temperature gauge and tachometer
- Exhaust manifold and silencer
- Supplied with operation and service workshop manual

The Unit is consist of recondition and/or brand new parts

DIESEL ENGINE, 4 CYLINDERS, WITHOUT TRANSMISSION

OT 109

- + The trainer is fully operating common petrol engine and transmission for training skills in observing engine operation, tune-up and gear shift transmission.
- + The trainer mounted on welded tubular steel frame with lockable castor wheel for mobility.

Specifications

| | |
|---|--|
| • Engine | : 4-cylinder in-line, 4-stroke |
| • Capacity | : 2.000-2.500 cc |
| • Fuel | : Diesel Fuel |
| • Valves | : OHV (Over Head Valve) |
| • Ignition system | : Glow plug with Indirect Injection |
| • Battery | : 12V, 70 Ah (included) |
| • Cooling system | : Liquid cooled with radiator and thermostat |
| • Built in flywheel guard, radiator guard for safety. | |
| • 10 liter fuel tank with fuel pump. | |



The Unit is consist of recondition and/or brand new parts

2-STROKE MOTORCYCLE ENGINE, SECTIONED

OT 200

- + This sectioned engine is expose most internal operation details, use for demonstrate the operation, function and interrelationship between components.
- + The unit is mounted on a specially designed sturdy pedestal stand equipped with castor wheel for mobility.

Specifications

| | |
|---|--|
| • Type of engine | : 2 stroke |
| • Displacement | : 100-115 cc |
| • Ignition | : CDI |
| • Starting System | : Kick or electric |
| • Brand | : Well known brand |
| • Electric motor | : 220 V single phase, low speed geared motor |
| • All major parts are sectioned such as engine block, oil pump, etc. | |
| • The sectioned area painted and color coded for easy identification. | |
| • Completed with a workshop/service manual. | |

4-STROKE MOTORCYCLE ENGINE, SECTIONED

OT 201

- + This sectioned engine is expose most internal operation details, use for demonstrate the operation, function and interrelationship between components.
- + The unit is mounted on a specially designed sturdy pedestal stand equipped with castor wheel for mobility.

Specifications

| | |
|---|--|
| • Type of engine | : 4 stroke |
| • Displacement | : 100-125 cc |
| • Ignition | : CDI |
| • Starting System | : Kick or electric |
| • Brand | : Well known brand |
| • Electric motor | : 220 V single phase, low speed geared motor |
| • All major parts are sectioned such as engine block, oil pump, etc. | |
| • The sectioned area painted and color coded for easy identification. | |
| • Completed with a workshop/service manual. | |



The Unit is consist of recondition and/or brand new parts



The Unit is consist of recondition and/or brand new parts

VESPA MOTORCYCLES ENGINE, SECTIONED

OT 202

- + This sectioned engine is expose most internal operation details, unit use for demonstrate the operation, function and interrelationship between components.
- + The unit is mounted on a specially designed sturdy pedestal stand equipped with castor wheel for mobility.

Specifications

| | |
|---|--|
| • Type of engine | : 2 stroke |
| • Displacement | : 150 cc |
| • Ignition | : CDI |
| • Starting System | : Kick or electric |
| • Brand | : Vespa |
| • Electric motor | : 220 V single phase, low speed geared motor |
| • All major parts are sectioned such as engine block, oil pump, etc. | |
| • The sectioned area painted and color coded for easy identification. | |
| • Completed with a workshop/service manual. | |

PETROL ENGINE, SECTIONED

OT 203

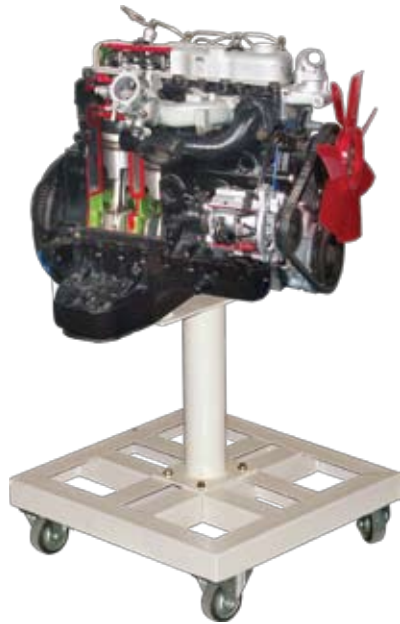
- + The unit is for demonstrate the operating principle, function and interrelationships between component, and internal structure of four stroke petrol engine.
- + The unit is mounted on a specially designed sturdy pedestal stand equipped with castor wheel for mobility.

Specifications

| | |
|---|-----------------------------------|
| • Type of engine | : 4 stroke, 4 cylinders |
| • Displacement | : 1500-1600 cc |
| • Number of Valves | : 8 valves, OHV (Over Head Valve) |
| • Ignition | : Conventional |
| • Starting System | : Electrical |
| • All major parts are sectioned such as engine block, oil pump, water pump, carburetor starting motor, alternator, and distributor. | |
| • The sectioned area painted and color coded for easy identification. | |
| • Completed with a workshop/service manual. | |



The Unit is consist of recondition and/or brand new parts



The Unit is consist of recondition and/or brand new parts

DIESEL ENGINE, SECTIONED

OT 204

- + The unit is for demonstrate the operating principle, function and interrelationships between component, and internal structure of four stroke petrol engine.
- + The unit is mounted on a specially designed sturdy pedestal stand equipped with castor wheel for mobility.

Specifications

| | |
|---|--|
| • Type of engine | : 4-cylinder in-line, 4-stroke |
| • Capacity | : 2.000-2.500 cc |
| • Fuel | : Diesel Fuel |
| • Valves | : OHV (Over Head Valve) |
| • Ignition system | : Glow plug with Indirect Injection |
| • Cooling system | : Liquid cooled with radiator and thermostat |
| • All major parts are sectioned such as engine block, oil pump, water pump, carburetor starting motor, alternator, and distributor. | |
| • The sectioned area painted and color coded for easy identification. | |
| • Completed with a workshop/service manual. | |

PRACTICE PETROL ENGINE, 4 CYLINDERS

OT 205

- + For training skills in disassembly, reassembly, repair and maintenance, and overhaul.
- + Engine without transmission.
- + Mounted on a sturdy tubular steel pedestal type stand and equipped with lockable castor wheel for mobility.

Specifications

| | |
|---|--------------------------------|
| • Type of engine | : 4-cylinder in-line, 4-stroke |
| • Fuel system | : Carburetor |
| • Displacement | : 1.000-1.600 cc |
| • Fuel | : Petrol |
| • Valves | : OHV (Over Head Valve) |
| • Ignition system | : CDI |
| • Exhaust manifold and silencer. | |
| • Completed with a workshop/service manual. | |



The Unit is consist of recondition and/or brand new parts

Model OT 205A - Practice Petrol Engine EFI (Electronic Fuel Injection), 4 Cylinders



The Unit is consist of recondition and/or brand new parts

PRACTICE DIESEL ENGINE, 4 CYLINDERS

OT 206

- + For training skills in disassembly, reassembly, repair and maintenance, and overhaul.
- + Engine without transmission.
- + Mounted on a sturdy tubular steel pedestal type stand and equipped with lockable castor wheel for mobility.

Specifications

- | | |
|---|-------------------------------------|
| • Engine | : 4-cylinder in-line, 4-stroke |
| • Capacity | : 2.000-2.500 cc |
| • Fuel | : Diesel Fuel |
| • Valves | : OHV (Over Head Valve) |
| • Ignition system | : Glow plug with Indirect Injection |
| • Exhaust manifold and silencer. | |
| • Completed with a workshop/service manual. | |



- Battery : 12V (included)
- Electric motor : 220V single phase, low speed geared motor
- Completed with a workshop/service manual.

The Unit is consist of recondition and/or brand new parts

MOTORCYCLE ELECTRICAL SYSTEM, PREWIRED

OT 300

- + Designed base on actual basic electrical wiring and firing system in most motorcycle.
- + Component mounted on sturdy bench equipped with castor wheel for mobility.
- + Operational model to demonstrate the electric generator system turned by electric motor.

Specifications

| | |
|---------------------------|---------|
| • Headlight | : 1 pc |
| • Turn signal | : 4 pc |
| • Horn | : 1 pc |
| • Tail light | : 1 pc |
| • Ignition system | : CDI |
| • Main contact switch | : 1 set |
| • Headlight & turn switch | : 1 set |
| • Brake switch | : 1 set |

CAR ELECTRICAL SYSTEM, PREWIRED

OT 301

- + Designed for student skill training in actual wiring of basic electrical system of most vehicles.
- + The unit mounted on sturdy bench equipped with castor wheel for mobility.

Specifications

| | |
|---|--|
| • Battery | : 12V (included) |
| • The trainer system consists of original automotive component parts: | |
| - Headlights | - Distributor with cap |
| - Front parking light | - Spark plugs |
| - Turn signals light, front and rear | - Alternator with regulator |
| - Brake light, rear | - Ignition system |
| - Tail lights | - Starting system |
| - Reverse lights | - Simulated dashboard |
| - Licence plate lamps | - Electric motor 220V single phase, low speed geared motor |

- Simulated Dashboard equipped with:
 - Ignition switch
 - Amperemeter
 - Head & parking light switch
 - High/Low beam switch
 - Turn signal switch
 - Horn button
 - Brake and reverse switch

The Unit is consist of recondition and/or brand new parts

Model OT 301A - Car Electrical System, Unwired



The Unit is consist of recondition and/or brand new parts

DIESEL ENGINE PREHEATING SYSTEM

OT 304

- + Demonstration model designed for the principle of manual and automatic glow plug ignition system for diesel engines.

Specifications

- | | |
|--|-------------------------------------|
| • Voltage | : Battery 12V/24V |
| • Glow plug | : 4 glow plugs with Ignition switch |
| • Pilot Lamp | : 1 pc |
| • Glow plug Indicator | : 1 pc |
| • System | : Manual & Automatic |
| • All component are mounted on Panel. | |
| • Complete with manual and wiring diagram. | |

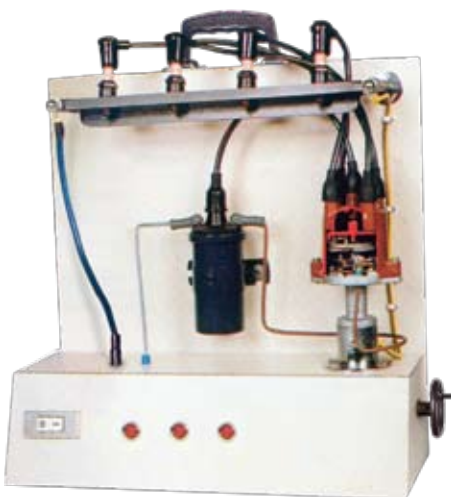
IGNITION SYSTEM, MECHANICAL

OT 305

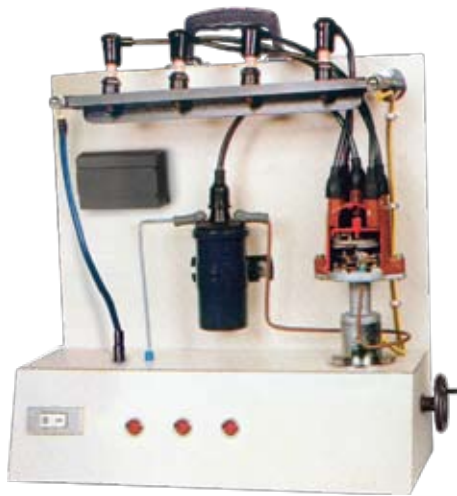
- + Demonstration model for demonstrating the principle of mechanical ignition system in most vehicle and represent the basic structure of mechanical ignition system.

Specifications

- | |
|---|
| • Battery 12V (included). |
| • Sectioned distributor cap to show the contact breaker point and internal structure. |
| • 4 Sparks plugs. |
| • All sectioned areas are painted and color coded for easy identification of parts. |
| • All the components are mounted on panel. |
| • Electrical connection by 4mm binding post. |



The Unit is consist of recondition and/or brand new parts



IGNITION SYSTEM, CDI

OT 306

- + Demonstration model for demonstrating the principle of CDI ignition system in most vehicle and represent the basic structure of electronic ignition system.

Specifications

- Battery 12V (included).
- Sectioned distributor cap to show the pick up device and internal structure.
- 4 Sparks plugs.
- All sectioned areas are painted and color coded for easy identification of parts.
- All the components are mounted on panel.
- Electrical connection by 4mm binding post.

The Unit is consist of recondition and/or brand new parts

WINDSCREEN WIPER SYSTEM

OT 307

- + Demonstration model, made from an original automobile windscreen wiper motor and mechanism.

Specifications

- Motor and Wiper mechanism : DC motor two speeds
- Wiper arm : One arm
- Electrical connections : 4mm binding binding post
- Completely and carefully sectioned showing all the key internal parts.
- All sectioned areas are painted and color coded for easy identification of parts.
- Battery 12V (included).
- Mounted on a Base.



The Unit is consist of recondition and/or brand new parts



ALTERNATOR, SECTIONED

OT 400

- + The unit is for demonstrate the operating principle and internal structure of vehicle alternator.

Specifications

- Original car alternator is completely and carefully sectioned showing all key internal structure and parts, such as rotor, stator and diode.
- All sectioned areas are painted and color coded for easy identification of parts.
- All electrical connections by 4mm binding post.
- Mounted on a Base.

The Unit is consist of recondition and/or brand new parts



STARTER MOTOR, SECTIONED

OT 401

- + The unit is demonstrate the operating principle and internal structure of starter motor.

Specifications

- Starter motor is completely and carefully sectioned showing all key internal parts.
- All sectioned areas are painted and color coded for easy identification of parts.
- All electrical connections by 4mm binding post.
- Mounted on a Base.

The Unit is consist of recondition and/or brand new parts



FUEL PUMP, MECHANICAL

OT 402

- + The unit is for demonstrate the operating principle and internal structure of mechanical fuel pump.

Specifications

- Original mechanical petrol fuel pump which carefully sectioned to show all internal parts.
- Pump is able to be operated by the cam lever to show the pumping motion.
- All sectioned areas are painted and color coded for easy identification of parts.
- Mounted on a base.

The Unit is consist of recondition and/or brand new parts



FUEL PUMP, ELECTRICAL

OT 403

- + Demonstration model to demonstrate the function of electric fuel pump.
- + All sectioned areas are painted with color coded thus it make easy to identification of parts.

Specifications

- Made from an original 12V Electric Petrol Fuel Pump
- Voltage requirements : Battery 12V (included)
- Electrical connections : 4mm binding post
- All sectioned areas are painted and color coded for easy identification of parts.
- Mounted on a Base.

The Unit is consist of recondition and/or brand new parts



HYDRAULIC MASTER CYLINDER SET

OT 404

- + The set are consist of 3 different type of hydraulic master cylinder designed to demonstrate the brake and clutch operation of a vehicle.

Specifications

- The set comprises Vacuum Servo Master Cylinder (A), Single Stage Master Cylinder (B) and Dual Stage Master Cylinder (C).
- Brake and clutch operation can demonstrated by using the lever.
- All master cylinders are carefully sectioned showing all key internal parts.
- All sectioned areas are painted and color coded for easy identification of parts.
- The units are mounted on a base.

The Unit is consist of recondition and/or brand new parts



CAR HYDRAULIC BRAKE SYSTEM

OT 405

- + The car brake system unit is designed for student skills training in the operations, installation, maintenance and repair of hydraulic brake systems.

Specifications

- Original automotive brake components mounted on chassis model completed with disc and drum brake system and equipped with castor wheel for mobility.
- Supplied with workshop/service manual.
- The system consist of:
 - 2 disc brakes
 - 2 drum brakes
 - Foot brakes pedal
 - Brake light activating switch
 - Hydraulic Brake master cylinder
 - Parking brake lever
 - 2 rear brake lights
 - Complete with hydraulic tubing and required cabling

The Unit is consist of recondition and/or brand new parts



The Unit is consist of recondition and/or brand new parts

INJECTION PUMP, ROTARY TYPE

OT 406

- + The unit is for demonstrate the operation and structure of the rotary type injection pump of diesel engine.

Specifications

- This unit is carefully sectioned as to show all internal parts.
- All sectioned areas are painted and color coded for easy identification of parts.
- Pump is able to be operated by the hand crank to show the pumping motion.
- Mounted on a base.

INJECTION PUMP, IN LINE TYPE

OT 407

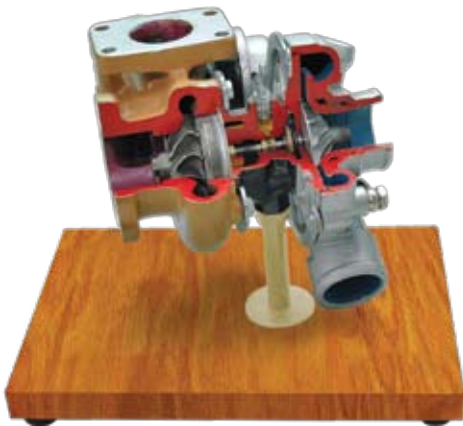
- + The unit is for demonstrating the internal structure and operating principle of the in line type injection pump of diesel engine.

Specifications

- Original four element in line injection pump with governor.
- Unit can be operated with hand crank handle.
- Completely and carefully sectioned to show all key parts.
- All sectioned areas are painted and color coded for easy identification of parts.
- Mounted on a base.



The Unit is consist of recondition and/or brand new parts



TURBOCHARGER, SECTIONED

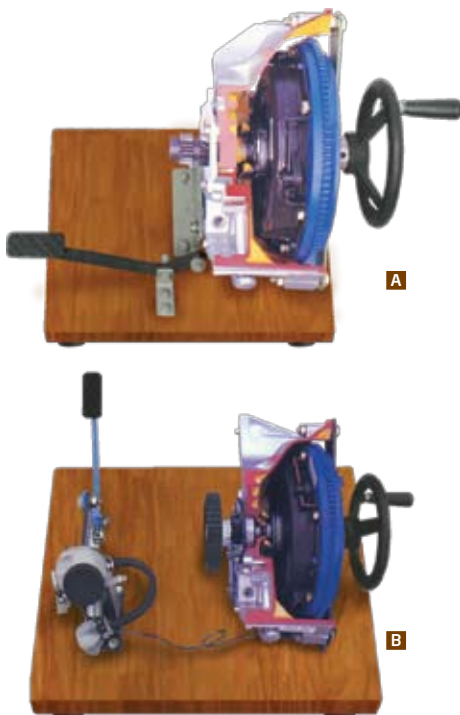
OT 408

- + The unit is for demonstrating and understanding the operating principle and internal structure of a turbocharger.

Specifications

- Original turbocharger which is carefully sectioned to show all key internal parts.
- All sectioned areas are painted and color coded for easy identification of parts.
- Mounted on a base.

The Unit is consist of recondition and/or brand new parts



CLUTCH DEMONSTRATION SET

OT 409

- + Fully functioning diaphragm and spring clutch type set designed for demonstrate the operational principles of the clutch used in common cars.

Specifications

- Consist of two clutch demonstration units and able to be operated by activating lever to engage or disengage the clutch:
 - A. Diaphragm Clutch systems :** Engine fly wheel, clutch disc, diaphragm type spring clutch pressure plate, clutch activating lever, throw out bearing, transmission spline shaft with hand crank, master cylinder hydraulic unit.
 - B. Spring Clutch systems :** Engine fly wheel, clutch disc, spring type clutch pressure plate, clutch activating lever, throw out bearing transmission spline shaft with hand crank.
- Entire demonstration unit mounted on a sturdy base.
- All sectioned areas are painted and color coded for easy identification of parts.
- Rotation of the flywheel and the transmission spline shaft can be observe for effective demonstration of clutch operation.

The Unit is consist of recondition and/or brand new parts



The Unit is consist of recondition and/or brand new parts

MANUAL TRANSMISSION, SECTIONED (REAR WHEEL DRIVE TYPE)

OT 410

- + The Training system is for demonstrate the operation of manual transmission.

Specifications

- Original manual transmission type.
- Drive type : Rear wheel drive
- Gearbox : 5 speed (4 forward + 1 reverse)
- Carefully sectioned all internal gears and shifting mechanisms are clearly visible.
- All sectioned areas are painted and color coded for easy identification of parts.
- Transmission can be rotated by means of a hand crank and gears shifted via the gear shift lever.
- The unit is mounted on to a sturdy pedestal floor stand that equipped with castor wheels for mobility.
- Supplied with workshop/service manual.

Model OT 410A - Manual Transmisson, Sectioned (Front Wheel Drive Type)



The Unit is consist of recondition and/or brand new parts

AUTOMATIC TRANSMISSION, SECTIONED

OT 411

- + The Training system is for demonstrate the operation of automatic transmission.

Specifications

- Original automatic transmission type.
- Drive type : Rear wheel drive
- Gearbox : 4 speed
- Carefully sectioned all internal gears and shifting mechanisms are clearly visible.
- All sectioned areas are painted and color coded for easy identification of parts.
- Transmission can be rotated by means of a hand crank and gears shifted via the gear shift lever.
- The unit is mounted on to a sturdy pedestal floor stand that equipped with castor wheels for mobility.

PROPELLER SHAFT

OT 412



The Unit is consist of recondition and/or brand new parts

- + The unit is designed for demonstrate the propeller shaft function of power link from the transmission to the rear axle in the vehicle.

Specifications

- The propeller shaft consists of center bearing, 2 sets of universal joints and the yoke.
- The unit can be detach from the base, equipped with castor wheel for mobility.

DIFFERENTIAL AND AXLE TRAINER

OT 413



The Unit is consist of recondition and/or brand new parts

- + The trainer designed for student to practice assembly/ disassembly skill, repair and maintenance techniques for rear axle and differential on common vehicle.

Specifications

- Original full size rear axle of common vehicle
- Mounted on sturdy steel floor stand equipped castor wheel for mobility



The Unit is consist of recondition and/or brand new parts

DIFFERENTIAL AND AXLE, SECTIONED

OT 414

- + The trainer designed for demonstrate the function of rear axle and differential on common vehicle.

Specifications

- Original full size rear axle of common vehicle.
- Carefully sectioned to show the operation of the differential unit where the planetary gears, ring gears and pinion are clearly displayed.
- All sectioned areas are painted and color coded for easy identification of parts.
- The unit can be operated by hand crank.
- Mounted on sturdy steel floor stand equipped castor wheel for mobility.

STEERING UNIT WITH SUSPENSION AND BRAKES

OT 415

- + The unit is ideal for demonstrate the operation and interaction of the steering with suspension and brakes system.

Specifications

- The unit is completely original front end unit of a vehicle with rack and pinion type steering and McPherson strut type suspension.
- All major components carefully sectioned to expose the internal working parts such as the steering gear box and brakes and expose the function of the stabilizer, shock absorber, steering linkage, suspension system, wheel alignment, operation of brakes.
- Component mounted on sturdy bench equipped with castor wheel for mobility.
- Completed with workshop/service manual.

The Unit is consist of recondition and/or brand new parts





The Unit is consist of recondition and/or brand new parts

POWER STEERING TRAINER

OT 416

- + Trainer design to demonstrate the function and operation of typical power steering system and also can be use by student to practice assembly/disassembly skill, repair and maintenance techniques.

Specifications

- Original automobile parts of a typical small passenger vehicle
- Complete front end steering and suspension system mounted on sturdy steel stand equipped with castor wheel for mobility
- The trainer have functioning components:
 - Steering wheel
 - Power steering gearbox
 - Front suspension steering linkages
 - Power steering pump with reservoir and hoses
 - Panel control with amperemeter and pressure gauge
- The Power Steering pump is driven by an electric motor 220V single phase

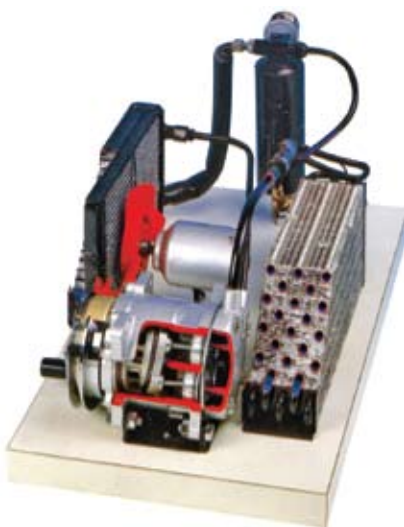
CAR AIR CONDITION, SECTIONED

OT 417

- + For demonstrating the structure of common car air conditioning system.

Specifications

- Rotating compressor with electromagnetic clutch
- Radiator - evaporator
- Radiator - condenser
- Dryer filter
- All sectioned areas are painted and color coded for easy identification of parts.
- Mounted on a base.



The Unit is consist of recondition and/or brand new parts

Model OT 417A Car Air Condition, Live



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