

EAU-960

Petrol Injection Motor Trainer

Teaching equipment for studying motors with Integrated Systems for Sequential Digital Electronic Petrol Injection, Direct Ignition Systems, and double Lambda regulators. The teaching equipment will include the latest generation in-line 4 cylinder motor (1.6L Duratec 16V 100CV) mounted on a functional mobile support, in running order, and with all of the components and accessories necessary for its operation in conditions similar to those of a car.

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Teaching application

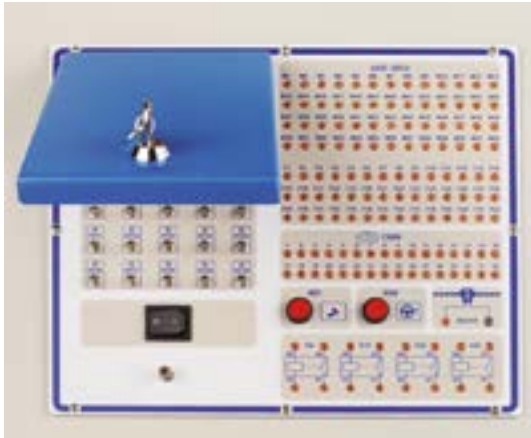
The teaching model is based on activities with genuine car parts arranged to facilitate the student's learning process:

- The application is real, with all of the parts of the motor to be learned about effectively integrated (verification of the injection system operating parameters, analysis of gases, starter and charging circuits, reading diagrams, etc.).
- Help in significantly reducing procedural activities learning time, thanks to the easy accessibility to the components, connectors and verification points. In addition, the characteristics of a car mounted motor are preserved.
- The instructor has the possibility of demonstrating the various systems and how to check the symptoms of different malfunctions.
- It enables students to develop diagnostic capabilities using professional tools and to repair break-downs.
- It is motivational for the students.

Teaching characteristics

The student will develop many skills using this equipment:

1. Motor and system maintenance.
2. Instrument operation for verification and diagnosis.
3. Simulation of malfunctions, verification and symptom recognition.
4. Diagnosis and repair of break-downs.
5. Circuit Analysis.
6. Diagram interpretation.
7. Verification and analysis of components and systems.
8. Use and interpretation of technical documentation.
9. Finding and identifying components.
10. Maintenance of starter and charging systems.



Teaching features

Integrated into the control panel, there is a system enabling the measurement of static and dynamic signals from the injection and starter systems, as well as the relays used by the system, analysis, diagnostics and repair of break-downs, including:

- Terminal plate for the analysis and diagnosis of the electrical-electronic signals used in the system.
- Module to generate malfunctions and breakdowns representative of those that could really appear in a vehicle, including the starter and injection systems as well as others which control the operation of the motor.
- Equipment usage authorization switch.
- Indicators for batteries, alarm groups, etc.
- Adjustable accelerator, ignition key, instrument panel, safety switch, ON-OFF switch.



Classroom management and student evaluation via SIRVAUT software integrated in the equipment.

User Manual.

Contains the standards of use for the equipment, characteristics, maintenance, etc.

Practice Activities Manual.

The manual proposes different types of activities that can be done using the trainer. It includes answers and appropriate solutions to the problems presented in order to make the teaching process easier.

Identification of individual components, identification of systems, verification of sensors and actuators, verification of E.C.U. input signals, verification of the E.C.U. output signals, reproduction and identification of breakdown symptoms, breakdown search and find, reading diagnostic codes, proposals for defect resolution, virtual repair, etc.



Wiring diagram manual.

This is a manual of diagrams similar to that used in automobile repair workshops that will help in the activities where circuits are followed, in locating and identifying installations, and in determining the breakdowns that have been initiated in the trainer.

Technical characteristics

- Systems for Sequential Digital Multipoint Injection with an Electronic Control unit (ECU) and an EOBD diagnostic connection.
- Emission control system with: Catalytic converter, precatalytic and post-catalytic Lambda sensors, vapour purge valve (Canister).
- Charging system composed of an alternator with incorporated regulator, intelligent regulation control system and charging indicator on the instrument panel.
- Accelerator and electronic butterfly valve.
- Electronic starter system with passive antitheft (PATS) and a status indicator.
- Fuel tank with a level indicator on the instrument panel.
- Complete cooling circuit.
- Standard EOBD (EOBDII) connection.
- Battery.
- Instrument and Control function panel with:
 - RPM indicator.
 - Motor temperature indicator.
 - Coolant temperature.
 - Fuel level indicator.
 - Oil pressure indicator.
 - Battery charge indicator.
 - Motor malfunction warnings.
- Safety systems made up by::
 - Starter block switch.
 - Emergency switch.
 - Protection with bornier tests for possible short circuits.
 - Low oil pressure triggers an alarm and the motor stops.
 - Belt guard with a safety micro-interrupter.
 - Moving parts and hot areas are protected.
- Sensor for measuring starter current and battery charge.
- The equipment is mounted on wheels.
- Dimensions and weights:
 - Equipment dimensions: 1.150 x 1.260 x 1.420 mm.
 - Package dimensions: 1.400 x 1.500 x 1.650 mm.
 - Package weight: 370Kgs.

BREAKDOWNS

Using a repair program system, the trainer can introduce malfunctions or breakdowns to the motor.

There are two options:

- Interactive computer-aided virtual repair system for breakdowns (SIRVAUT) which enables not only breakdown analysis but also virtual repair generating a history log for evaluation by the instructor.
- Manual breakdown repair system (using switches).



New original components

An original new motor (not rebuilt).



Relays, fuses, and an anti-start (PATS) employed in the system.



Sensor for measuring current.



petrol injection motor trainer

- Genuine new motor.
- Emission control system.
- Ignition System.
- Starter and charging system.
- Security System.
- Diagnosis.
- Breakdown repair.

