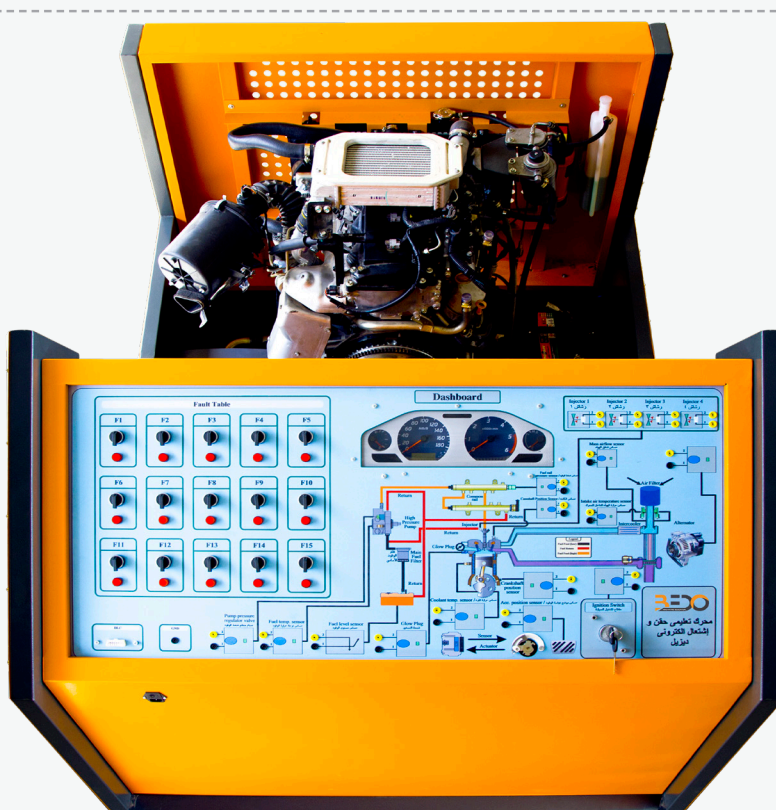


Electronic Injection Diesel Engine Trainer

Overview

CRDI diesel engine trainer features a real operational electronic injection diesel engine complete with all supplementary systems necessary for its operation including electric system , injection system , cooling system , intake & exhaust system and etc. The trainer helps in demonstration electronic injection diesel engine structure, operation and testing its performance under normal and faulty conditions. Additionally, the unit is provided with faults insertion switches to simulate 15 most common faults of CRDI diesel engine vehicles and enhance trainees faults finding skills.



Specifications

- The educational unit features a 4-cylinder electronic injection diesel engine mounted inside a robust chassis.
- The special design of the trainer chassis allows accomodating all CRDI diesel engine car systems , also allow observing all these systems clearly during operation while maintaining safety at the same time.
- The unit includes all systems required for

CRDI diesel engine operation such as:

- » Battery
- » Electric circuitry
- » Fuel reservoir
- » ECU (electronic control unit)
- » Fuel injection system
- » Cooling system

- » Intake & exhaust system
- » Starter motor and alternator
- » RWD manual transmission system
- The trainer is supplied with RWD manual transmission system by default.
- The unit comes by default with 1900 CC electronic injection diesel engine.
- The trainer has a large control panel serves as an easy interface between the car systems and the user.
- The control panel includes the following modules for system elements:
 - » Operation module
 - » Faults module
 - » Alternator module
 - » Mass airflow sensor module
 - » Intake air temperature sensor module
 - » Fuel rail pressure sensor module
 - » Crank shaft position sensor module
 - » Cam shaft position sensor module
 - » Acc. position sensor module
 - » Coolant temperature sensor module
 - » Glow plug module
 - » Fuel level sensor module
 - » Fuel temperature sensor module
 - » Pump pressure regulator valve module
 - » Injectors module
- Each component represented in the above modules is provided with dedicated safety sockets internally connected to the real component to allow connecting external measuring devices for examination.

- The operation module includes the following switches & LEDs:
 - » Ignition switch module
 - » Emergency switch
 - » DLC module
 - » Dash board module
- Using the key in the ignition switch module, the instructor will be able to start the engine exactly as it happens in real cars.
- A real acceleration pedal is integrated into the control panel to allow increasing the engine speed.
- DLC modules is used to connect external fault diagnosis devices.
- The unit is capable of simulating 15 CRDI diesel engine system faults using faults insertion switches on the control panel.
- The educational unit is provided with a schematic diagram of the petrol engine components showing its internal parts.
- Dashboard enables the trainee to observe car speed and to study its behaviour under acceleration.
- The engine condition is refurbished by default ,where it has undergone a complete overhaul and has received a paint job.
- The trainer is mounted on four heavy duty caster wheels able to carry the system weight for better mobility.
- Caster wheels are equipped with foot-operated brakes to lock the wheels and help fix the unit and prevent sliding.

Experiments

- Familiarization with CRDI diesel engine structure and operation.
- Familiarization with all supplementary systems in typical CRDI diesel engine car.
- Observing how CRDI diesel engine and other systems are combined and connected together to perform the required function.
- Gaining skills in CRDI diesel engine system faults finding.
- Learning about the function of each system in the CRDI diesel engine cars.
- Learning about the type and function of each sensor in CRDI diesel engine car.
- Testing the behavior of each component

in the system under normal condition and faulty condition and comparing between its readings in both cases using external multimeter or oscilloscope.

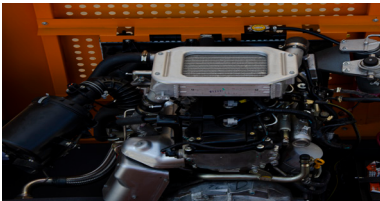
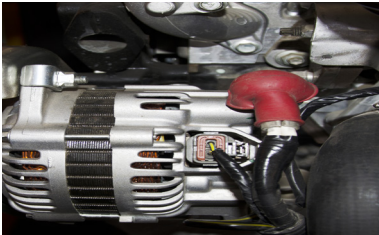


- After understanding the system , the trainee will be ready to study its common malfunctions using below listed faults insertion switches:
 - » **F1** : Camshaft Position Sensor fault
 - » **F2** : Crankshaft Position Sensor Fault
 - » **F3** : Mass Air Flow Sensor Fault
 - » **F4** : Intake Air Temperature Sensor Fault
 - » **F5** : Fuel Temperature Sensor Fault

- » **F6** : Coolant Temperature Sensor Fault
- » **F7** : Alternator Fault
- » **F8** : Fuel Level Sensor Fault
- » **F9** : Fuel Rail Pressure Sensor Fault
- » **F10** : Glow Plug Fault
- » **F11** : Injector 1 Fault
- » **F12** : Injector 2 Fault
- » **F13** : Injector 3 Fault
- » **F14** : Injector 4 Fault
- » **F15** : Acc. Position Sensor Fault

Technical Data

- Battery 65 A/H.
- Fuel tank 30 liters.
- Cooling fan 12 volts.
- Diesel Engine 1900 cc

Components

Diesel Engine	Alternator
	
Fuel Tank	Cooling Fan
	

Scope of Delivery

- Electronic Injection Diesel Engine Trainer (EDE-104)
- Hard copy user manual

Options

- Bedo troubleshooting software
 - » Required for operation : PC
- Refurbished engine 2500 CC
- Brand new engine 1900 CC
- Brand new engine 2500 CC
- Multi-meter
- Oscilloscope
- Fault diagnosis device
- Digital content (BI01)