

**Description:**

This is a 4-cylinder, 4-stroke, turbocharged diesel engine equipped with a Common Rail Direct Injection (CRDI) system. Designed for educational and laboratory purposes, it features a fault simulation board for training on engine diagnostics, troubleshooting, and fault analysis. The engine is suitable for no-load testing with manual cutoff, enabling safe experimentation with fuel system faults, sensor errors, and injection irregularities.

Educational Objectives

- Students will be able to:
- Demonstrate operation of a CRDI diesel engine under no-load conditions.
- Understand fuel injection system behavior and combustion characteristics.
- Train students to identify and troubleshoot engine faults using a simulation board.
- Learn to observe engine response to manual cutoff and simulated injector/sensor faults.
- Develop skills in OBD diagnostics and interpretation of engine parameters

Performance Measurement

- Engine Speed (RPM): Measure using tachometer. Observe fluctuations during manual cutoff or faults.
- Fuel Supply Behavior: Observe flow interruption and engine stoppage.
- Exhaust Emission (Smoke): Visual inspection to analyze incomplete combustion during faults.
- Fault Simulation Response: Check system response for injector faults, sensor errors, or fuel pump malfunctions.
- Note: This setup is for diagnostic and educational purposes only; torque and power measurements are not performed under no-load test.

Note: Specifications are subject to change, Photos shown above are Indicative, Actual Product can Vary.



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- Supports standard OBD II or universal scan tools.
- Allows reading of engine fault codes, sensor data, and injector status.
- Facilitates learning of ECU communication and troubleshooting procedures.

Technical Specifications:-

Feature	Specification / Function
Engine Type	4-Cylinder, 4-Stroke, Turbocharged, CRDI Diesel
Displacement	1500 – 2500 cc
Maximum Power	70 – 110 HP
Fuel System	Common Rail Direct Injection (CRDI)
Cooling System	Water Cooling
Fuel Tank	10 Liters with Fuel Gauge
Engine Block / Head	Cast Iron Block & Aluminum Head
Instrumentation Panel	Speed, Temperature, Fuel Pressure, Charging Indicator
Diagnostic Interface (DLC)	Supports OBD / Universal Scan Tool
Fault Simulation Board	Manual switches for fault creation & diagnosis
Educational Board	Printed wiring & circuit diagram for teaching

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