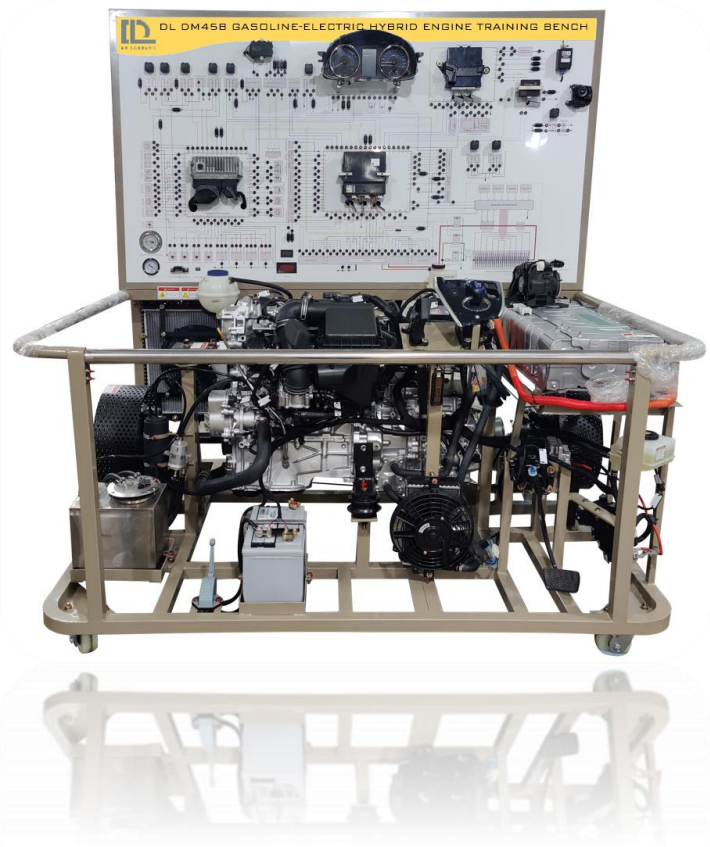
GASOLINE-ELECTRIC HYBRID ENGINE TRAINING BENCH – LIVE ENGINE



The image is for reference only

DL DM45B

LEARNING EXPERIENCE

This demonstration panel is designed based on the Toyota Corolla 1.8L's gasoline-electric hybrid power engine. It can simulate engine start-up, speedup, slowdown, and other actions with the aim of illustrating the structure and working principle of gasoline and electric hybrid power engines. The device applies to theoretical teaching and maintenance training of the gasoline and electric hybrid power engine for secondary vocational skill schools and is equipped with a tablet to set and clear faults.

MAIN CHARACTERISTICS

The didactic system shows a real and operable gasoline and electric hybrid power engine used to illustrate the structure and working process of the engine. It is composed of a synoptic panel and a live engine.

Main components:

- Detection control panel (with various detection terminals and color circuit diagram),
- EFI gasoline engine (four cylinders four strokes, 16 valves, DOHC (**D**ouble **O**ver **H**ead **C**amshaft), with VVT-i (**V**ariable **V**alve **T**iming **i**ntelligent), maximum power 73kW, maximum torque 142Nm with control unit.
- e-CVT (**E**lectronic - **C**ontinuously **V**ariable **T**ransmission).

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AUTOTRONICS

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GENERAL CHARACTERISTICS

- Dim. mm (LxWxH): 1800mm x 1200mm x 1920mm
- Fuel No.: According to engine model
- Fuel tank size: 10L
- Operating voltage: 12Vdc
- Operating functioning temperature: -40°C to +50°C.

ACCESSORIES

Suggested instruments for best practice:

- Digital Multimeter (not included).
- Automotive Oscilloscope (not included).
- OBD Fault diagnosis Scanner (not included).

- Hybrid power control unit.
- Nickel-Metal High-voltage battery (201.6V, 6.5Ah, 168 cells) with control unit.
- Inverter.
- ECU (**E**ngine **C**ontrol **U**nit).
- OBD II diagnosis socket (**O**n-**B**oard **D**iagnostics).
- Dashboard (Include multi-functional display screen, English language, Mileage less than 50km).
- Converter.
- High-voltage cable.
- Gear shift lever.
- One-key startup switch.
- EV MODE switch/ECO MODE switch/PWR MODE switch.
- MG1 (Permanent magnet synchronous motor, maximum system voltage DC 650V).
- MG2 (Permanent magnet synchronous motor, maximum output power 53kW, maximum output torque 207Nm).
- Electronic transmission bridge.
- Braking system.
- Fuel pressure meter.
- Vacuum pressure meter.
- Fuel tank and Gasoline feed pump (including the plug).
- Throttle controller.
- Inlet and exhaust pipes (including protection covers).
- Radiator (including the protection cover).
- Cooling fan.
- Exhaust system.
- Air supply system.
- +12V battery.
- Relay.
- Fuses.
- Master power switch.
- Wireless fault-setting and appraisal system by tablet.
- Movable framework (with lockable casters).

OTHER CHARACTERISTICS

a) The trainer is made of advanced aluminum-plastic plate with characteristics of not less than 4mm thick. The plate is corrosion resistant, impact resistant, pollution resistant, fireproof, and moisture proof. The panel

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surface is processed by special craft and spraying primer. The circuit diagrams are painted with never fade color and the boards are coated with varnish. The trainees can learn and analyze the working principle of the control system by observing and analyzing the diagram and the real-life components. Pivoting wheels are mounted.

b) The training bench is installed with dashboard (including multi-functional display screen) to illustrate parameters changes in the power transmission process, speed, oil pressure indicating light and electronic control system failure indicating light.

c) The training panel has installed detection terminals to identify various detectors, actuators, engine control unit, hybrid power unit pins' electrical signals, such as resistance, voltage, current or frequency.

d) The training panel has installed a OBD II diagnosis socket to which an automobile decoder can be connected to detect and clear fault codes, and reads data stream from the engine, and hybrid power control systems.

e) A throttle controller is installed on the bench to accelerate and slowdown. A master power switch, a radiator shield, a flywheel shield, and other protection devices are installed on the training bench to keep students safe during the testing process.

f) Equipped with intelligent fault setting system, able to include fault setting and troubleshooting.

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