

The MT-Moteur-E-BSI is a new full operational engine with battery charger and fuel gauge that allows discovering petrol engine functionalities in total security.

As in the vehicle, the engine is equipped with all its components: injection system, electrical wiring harness, injection ECU, etc.

OBJECTIVES

- Functional study of the engine system without using of real vehicle offering more visibility and accessibility.
- Training for technical diagnostic.
- Maintenance operations.
- Observation and learning of system construction and its different parts.



DESIGN

The **MT-Moteur-E-BSI** is built with unused and manufacturer original components. It is a fully instrumented working model to be used in training institutions. This engine system is based on real components those come from the vehicle constructors.



The real elements are:

- Petrol engine TU5JP4 1,6l 16S type;
- Fuel supply system;
- Cooling system, radiator, fans;
- Electrical system (battery, starting and charging systems);
- Built-in Systems Interface (BSI);
- Exhaust system.



The elements assembled by **EXXOTEST[®]**:

- An aluminium frame for the motor support on Ø160mm caster wheels.
- A transparent bonnet covers the engine in totality; it is articulated and supported by jacks.
 - The position 'Close' provides maximum safety during operation of the engine with full visibility.
 - The position 'Open' allows a wide access to the engine and facilitates the different operations.
 - The electrical lock controlled by the control panel locking the bonnet.
- The electric power system is protected by a removable cover.
- A fluid retention tray is fitted in the event of leakage or mishandling.
- Physical values sensors (pressure, temperature, ...).
- Control panel.

SPECIFICATIONS

The **MT-Moteur-E-BSI** 1,6l 16 S TU5JP4 type petrol engine: phased sequential injection BOSCH ME 7. 4. 5, catalytic converter, 2 lambda sensors (motorized throttle valve, ...).

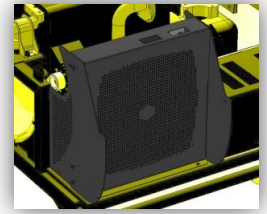
The fuel supply is controlled by the gauge and submersible pump system of the vehicle (level indication on the dashboard).

The electrical power supply is fitted into a locked box at the front of the training chassis.



It contains:

- The vehicle battery;
- A circuit breaker;
- An automatic battery charger;
- The 110/230 V plug for the charger's power supply.



The cooling system, placed at the front of the chassis, includes the radiator, the fans unit, various hoses and an expansion bottle.



The main ECU (BSI) provides different functionalities as:

- Gateway function for CAN HS network;
- Control of the security fuse for electrical power supply;
- Control of the engine immobilizer;
- Diagnostic connection control;
- Managing of the information about battery charge level, fuel level and starting command.

The **EXXOTEST**[®] chassis is rugged and lightweight, and is protected with epoxy paint.

The control panel includes the following items:

- Key switch, emergency stop punch, opening bonnet control, electronic throttle lever.
- Analog indicators/ tachometer, water temperature, fuel level, lamps, clock, ...
- High resolution color screen displaying engine parameters from CAN bus and optional sensors, ... (see table).
- Diagnostic plug: an **EXXOTEST**[®] CL550 is provided with each engine.



EXXOTEST[®] CL550, multi-functions tester bringing together the functions of Oscilloscope, Mutimeter and OBD II scantool.

- 100% evolutionary: USB PC link for printout, data export, updates,
- 100% **EXXOTEST**[®]: easy, user friendly and efficient.

Main features:

- 2 channels multi-meter with trace mode,
- 2 channels Oscilloscope,
- OBD II 9 modes Scan tool.

EQUIPMENTS

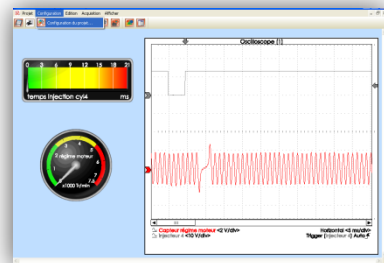
The **EXXOTEST**[®] MT-Moteur-E-BSI can be associated to **EXXOTEST**[®] breakdown boxes (BAP108-L or/and BAP54-L). They facilitate measurements access and allow the teacher to create faults safely, without any risk of deterioration or change of the system studied. Interface kits:

- 32 pins Grey, Black and Brown interfaces for engine management systems,
- 48 pins Grey, Black and Brown interfaces for engine management systems,
- 53 pins Black and Brown interfaces for engine management systems
- BSI FULL CAN interfaces (requires 2 xBAP108-L)
- Interfaces for body/comfort applications: embedded electronics, sliding side door, electrical steering assistance, dashboard, A/C.



Another solution for analysis and diagnostics of engine system are the breakout boxes. Easy to use, they cover a large range of current automotive connectors. Each breakout box fits with the car manufacturer cable section standards and therefore generates no disturbance on the vehicle. Measurements are done using delivered test leads. For the **EXXOTEST**[®] MT-Moteur-E-BSI you can use the **EXXOTEST**[®] MT-MOBM-ED.

The **EXXOTEST**® MT-Moteur-E-BSI can be also associated to REFLET® that is a measurements logging system specifically designed for automotive applications. It allows real-time playback and recording, curves tracing, and more. REFLET® also provides a 3D instruments interface and dynamic visualization of 3D objects.



OTHER

Engin's parametres shown in real time:

Water temperature warning	Torque	Battery voltage
Instaneous consumption	Oil temperature	Engine speed
Driver request	MIL lamp	Diesel preheating lamp
Cooling liquid temperature	Starting information	Engine running information

- Voltage: 16V
- Size: 1800x1300x1400 mm
- Net weight: 300 Kg
- Brut weight: 380 Kg
- Warranty: 2 years for the elements and assembling

Find all **EXXOTEST**® products on the Internet: www.exxotest.com