OBDMATE® OM500

User's Manual

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1. Safety Precautions and Warnings

To prevent personal injury or damage to vehicles and/or the scan tool, read this instruction manual first and observe the following safety precautions at a minimum whenever working on a vehicle:

- Always perform automotive testing in a safe environment.
- Do not attempt to operate or observe the tool while driving a vehicle. Operating or observing the tool will cause driver distraction and could cause a fatal accident.
- Wear safety eye protection that meets ANSI standards.
- Keep clothing, hair, hands, tools, test equipment, etc. away from all moving or hot engine parts.
- Operate the vehicle in a well ventilated work area: Exhaust gases are Poisonous.
- Put blocks in front of the drive wheels and never leave the vehicle unattended while running tests.
- Use extreme caution when working around the ignition coil, distributor cap, ignition wires and spark plugs. These components create hazardous voltages when the engine is running.
- Put the transmission in PARK (for automatic transmission) or NEUTRAL (for manual transmission) and make sure the parking brake is engaged.
- Keep a fire extinguisher suitable for gasoline/chemical/electrical fires nearby.
- Don't connect or disconnect any test equipment while the ignition is on or the engine is running.
- Keep the scan tool dry, clean, free from oil/water or grease. Use a mild detergent on a clean cloth to clean the outside of the scan tool, when Necessary.

2. General Information

2.1 On-Board Diagnostics (OBD) II

The first generation of On-Board Diagnostics (called OBD I) was developed by the California Air Resources Board (CARB) and implemented in 1988 to monitor some of the emission control components on vehicles. As technology evolved and the desire to improve the On-Board Diagnostic system increased, a new generation of On-Board Diagnostic system was developed. This second generation of On-Board Diagnostic regulations is called "OBD II".

The OBD II system is designed to monitor emission control systems and key engine components by performing either continuous or periodic tests of specific components and vehicle conditions. When a problem is detected, the OBD II system turns on a warning lamp (MIL) on the vehicle instrument panel to alert the driver typically by the phrase "Check Engine" or "Service Engine Soon". The system will also store important information about the detected malfunction so that a technician can accurately find and fix the problem. Here below follow three pieces of such valuable Information:

1) Whether the Malfunction Indicator Light (MIL) is commanded 'on' or 'Off';
2) Which, if any, Diagnostic Trouble Codes (DTCs) are stored;
3) Readiness Monitor status.

JOBD refers to Japanese On-Board Diagnostics and it is present on Vehicles for Japanese market.

2.2 Diagnostic Trouble Codes (DTCs)

OBD II Diagnostic Trouble Codes are codes that are stored by the on-board computer diagnostic system in response to a problem found in the vehicle. These codes identify a particular problem area and are intended to provide you with a guide as to where a fault might be occurring within a vehicle. OBD II Diagnostic Trouble Codes consist of a five-digit alphanumeric code. The first character, a letter, identifies which control system sets the code. The other four characters, all numbers, provide additional information on where the DTC originated and the operating conditions that caused it to be set. Below is an example to illustrate the structure of the digits:
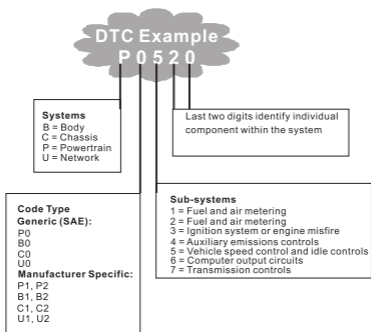
DTC Example
P 0 5 2 0

Systems
B = Body
C = Chassis
P = Powertrain
U = Network

Last two digits identify individual
component within the system

Code Type
Generic (SAE):
P0
B0
C0
U0
Manufacturer Specific:
P1, P2
B1, B2
C1, C2
U1, U2

Sub-systems
1 = Fuel and air metering
2 = Fuel and air metering
3 = Ignition system or engine misfire
4 = Auxiliary emissions controls
5 = Vehicle speed control and idle controls
6 = Computer output circuits
7 = Transmission controls

Figure 1-2: Explanation of a diagnostic trouble code.

2.3 Location of the Data Link Connector (DLC)

The DLC (Data Link Connector or Diagnostic Link Connector) is the
standardized 16-cavity connector where diagnostic scan tools interface
with the vehicle's on-board computer. The DLC is usually located 12
inches from the center of the instrument panel (dash), under or around the
driver's side for most vehicles. If the Data Link Connector is not located
under the dashboard, a label should be there revealing its location. For
some Asian and European vehicles, the DLC is located behind the ashtray
and the ashtray must be removed to access the connector. If the DLC
cannot be found, refer to the vehicle's service manual for the location.

Figure 1-3: The DLC connector (left) can be found in the area of
the car interior seen at right (black arrow).
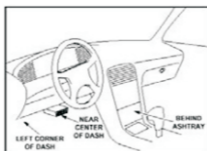
3. Using the Scan Tool

3.1 Tool Description - OBDMATE OM 500

1. **LCD DISPLAY** – Indicates test results. Backlit, 128 x 64 pixel display with contrast adjustment.

2. **ENTER BUTTON** – Confirms a selection (or action) from a menu.

3. **EXIT BUTTON** – Cancels a selection (or action) from a menu or returns to the menu. It is also used to setup system, exit DTC Lookup screen.

4. **UP SCROLL BUTTON** – Moves up through menu and submenu items in menu mode. When more than one screen of data is retrieved, moves up through the current screen to the previous screens for additional data. Update the DTC lib need press this button,When Tools connected with PC by Usb cable.

5. **DOWN SCROLL BUTTON** – Moves down through menu and submenu items in menu mode. When more than one screen of data is retrieved, moves down through the current screen to next screens for additional data.

6. **OBD II CONNECTOR** – Connects the scan tool to the vehicle's Data Link Connector (DLC).

3.2 Specifications

1) Display: Backlit, 128 × 64 pixel display with contrast adjustment
2) Operating Temperature: 0 to 60°C (32 to 140 F°)
3) Storage Temperature: -20 to 70°C (-4 to 158 F°)
4) External Power: 8.0 to 18.0 V power provided via vehicle battery
5) Dimensions:

| Length	Width	Height
125 mm (5.00")	70 mm (2.80")	22 mm (0.90")

6) NW: 0.23kg (0.51lb), GW: 0.32kg (0.74lb)

3.3 Included

1) OM500 Scan Tool main unit
2) User's Manual

3.4 Tool Setup

The scan tool allows you to make the following adjustments and settings:

1) **Contrast**: Adjusts the contrast of the LCD display.

2) **Device info**: display software version and hardware version of the tool.

3) **Seft test**: Include the Lcd display test and the keyboard test.

```
          Tool Setup
             1/3
  ▶Adjust Contrast
   Device Info.
   Self Test
```
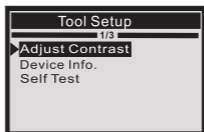
From the Main Menu: Use the **UP/DOWN** scroll button to select System **Setup**, and press the **ENTER** button. Follow the instructions to make adjustments and program settings as described in the following setup options.

Adjust Contrast

1) From the **System Setup** menu, use the **UP/DOWN** scroll button to select **Contrast**, and press **ENTER**.

```
          Tool Setup
             1/3
  ▶Adjust Contrast
   Device Info.
   Self Test
```
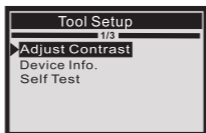
2) From the **Contrast** menu, use the **UP/DOWN** scroll button to increase or
   decrease contrast.

```
Adjust contrast
      1/3
The contrast :
      55 %
```
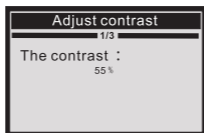
3) Press **ENTER** to save your settings and return to the previous menu.

 Device Information

- Check the tool Software version and hard version.

1) From the **System Setup** menu, use the **UP/DOWN** scroll button to select De-
   Vice Information and press **ENTER**.

```
Device Information
Software version:
      1.00
 Hardware version:
      1.00
```

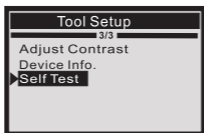2) Press the **Exit** button to return to the previous Menu.

Self-test

The Self-test checks if the display and keyboard are working properly.
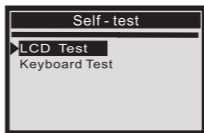
A. LCD test

The LCD Test function checks if the LCD display is working properly.

1) From the **System Setup** menu, use the **UP/DOWN** scroll button to select **Tool Self-test**, and press **ENTER**.

```
              Tool Setup
              ▬▬▬ 3/3 ▬▬▬
           Adjust Contrast
           Device Info.
        ▶ Self Test
```

2) Select **LCD Test** from the **Self-test** menu and press **ENTER**.

```
              Self - test

        ▶ LCD  Test
           Keyboard Test
```
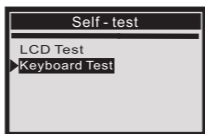
3) Press **ENTER** to start test. Look for missing spots in the solid black characters.

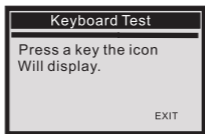4) When completed, press **EXIT** to return.

B. Keyboard Test

The Keyboard Test function verifies if the keys are functioning properly.

1) Use the **UP/DOWN** scroll button to select the **Keyboard Test** from the **Tool Self-test menu**, and then press **ENTER**.

```
        ┌─────────────────────────────┐
        │         Self - test         │
        ├─────────────────────────────┤
        │  LCD Test                   │
        │ ▶Keyboard Test              │
        │                             │
        │                             │
        └─────────────────────────────┘
```

2) Press any key to start the test. When you press a key, the key name is
   observed on the display. If not, then key is not functioning properly.

```
        ┌─────────────────────────────┐
        │       Keyboard Test         │
        ├─────────────────────────────┤
        │  Press a key the icon       │
        │  Will display.              │
        │                             │
        │                      EXIT   │
        └─────────────────────────────┘
```
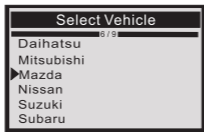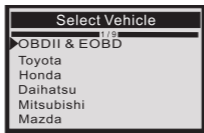
3) Press the **EXIT** to return to the previous menu.

4. Diagnostics Codes

CAUTION: Don't connect or disconnect any test equipment with ignition on or engine running.

1) Turn the ignition off.
2) Locate the vehicle's 16-pin Data Link Connector (DLC).
3) Plug the scan tool cable connector into the vehicle's DLC.
4) Turn the ignition on. Engine can be off or running.
5) Press **ENTER** to enter **Main Menu**. Use the **UP/DOWN** scroll button to select **Diagnostics** from the menu.

```
          Main Menu
              1/2
  ▶Diagnostics Codes
   Tool setup



```
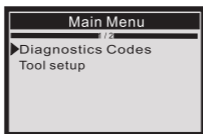
6)Press **ENTER** to enter **Diagnostics Codes menu** Then enter the Select Vechcle menu.

```
        Select Vehicle
              1/9
  ▶OBDII & EOBD
   Toyota
   Honda
   Daihatsu
   Mitsubishi
   Mazda
```

```
        Select Vehicle
              6/9
   Daihatsu
   Mitsubishi
  ▶Mazda
   Nissan
   Suzuki
   Subaru
```
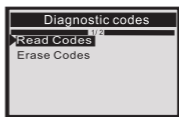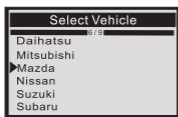
As the meun the OM500 support Vehicle cases as below:
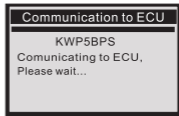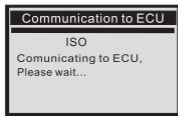
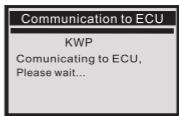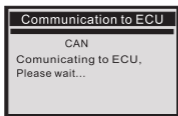OBDII&EOBD Work on all after 1996 OBD II compliant US, European and Asian Vehicles.

Janpanese Market car by Brand :
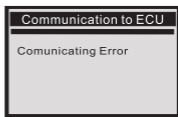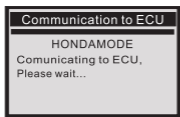
Toyota	most used car on 16-PIN compatible.
Nissan	most used car on 16-PIN compatible.
Honda	all 16 pins used. Including light. If a connector located in the Passenger seat.
Mazda	all 16 pins used car. CAN compatible vehicles since 2003.
Mitsubishi	most used car on 16-PIN compatible.
Daihatsu	most used car on 16-PIN compatible.
Subaru	most used car on 16-PIN compatible.
Suzuki	most used car on 16-PIN compatible.

Press **ENTER** can enter select car Reading and Erasing Fault code Function

Select Vehicle
6/9
Daihatsu
Mitsubishi
▶Mazda
Nissan
Suzuki
Subaru

Diagnostic codes
1/2
▶Read Codes
Erase Codes

Select Read Codes Press **ENTER**

Communication to ECU
CAN
Comunicating to ECU,
Please wait...

Communication to ECU
KWP
Comunicating to ECU,
Please wait...

Communication to ECU
ISO
Comunicating to ECU,
Please wait...

Communication to ECU
KWP5BPS
Comunicating to ECU,
Please wait...

```
┌─────────────────────────┐        ┌─────────────────────────┐
│ Communication to ECU    │        │ Communication to ECU    │
├─────────────────────────┤        ├─────────────────────────┤
│      HONDAMODE          │        │  Comunicating Error     │
│  Comunicating to ECU,   │        │                         │
│  Please wait...         │        │                         │
│                         │        │                         │
└─────────────────────────┘        └─────────────────────────┘
```
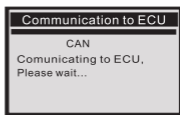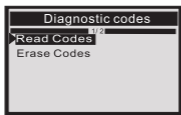
7) Press **ENTER** to confirm. A sequence of messages displaying the scan
Protocols will be observed on the display until the vehicle protocol is detected.

- *If the scan tool fails to communicate with the vehicle's ECU (Engine*
  Control Unit), a "Communication ERROR!" message shows up on the
  Display. Need check :

    - Verify that the ignition is ON;
    - Check if the scan tool's 16PIN connector is securely connected to the
      vehicle's DLC;
    - Turn the ignition 'off' and wait for about 10 seconds. Turn the ignition
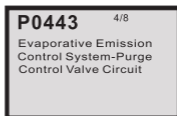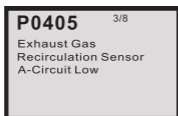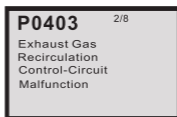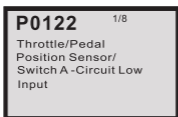   back to 'on' and repeat the procedure from step 5.

4.1 Read Codes

- **Stored codes are also known as "hard codes" or "permanent codes".**
  These codes cause the control module to illuminate the malfunction
  indicator lamp (MIL) when an emission-related fault occurs.

1) Use the **UP/DOWN** scroll button to select **Read Codes** from the **Diagnostic**
Menu and press **ENTER**.

```
┌─────────────────────────┐        ┌─────────────────────────┐
│   Diagnostic codes      │        │ Communication to ECU    │
├─────────────────────────┤        ├─────────────────────────┤
│ ▶Read Codes             │        │      CAN                │
│  Erase Codes            │        │  Comunicating to ECU,   │
│                         │        │  Please wait...         │
│                         │        │                         │
└─────────────────────────┘        └─────────────────────────┘
```
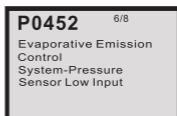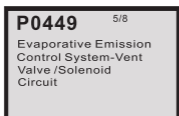
- *If there are no Diagnostic Trouble Codes present, the display indicates "No fault codes " Press EXIT return*

2) View DTCs and their definitions on screen.

```
P0122            1/8
Throttle/Pedal
Position Sensor/
Switch A -Circuit Low
Input
```

```
P0403            2/8
Exhaust Gas
Recirculation
Control-Circuit
Malfunction
```

```
P0405            3/8
Exhaust Gas
Recirculation Sensor
A-Circuit Low
```

```
P0443            4/8
Evaporative Emission
Control System-Purge
Control Valve Circuit
```

- *The control module number, sequence of the DTCs, total number of codes detected will be observed on the upper right hand corner of the display.*

3) If more than one DTC is found, use the **UP/DOWN** scroll button, as necessary, until all the codes have been viewed.
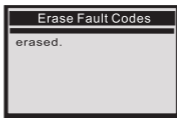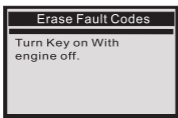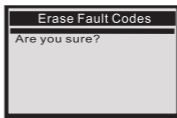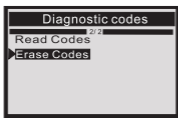
```
P0449            5/8
Evaporative Emission
Control System-Vent
Valve /Solenoid
Circuit
```

```
P0452            6/8
Evaporative Emission
Control
System-Pressure
Sensor Low Input
```

4.2 Erase Codes

Notes:

- *This function is performed with key on engine off . Do not start the engine.*
- *Before performing this function, make sure to retrieve and record the trouble codes.*
- *After clearing, you should retrieve trouble codes once more or turn ignition on and retrieve codes again. If there is still some trouble codes for hard troubles, please find the reason caused the trouble code firstly, and then solve the problem. Now, the trouble codes can be erased.*

1) Use the **UP/DOWN** scroll buttons to select **Erase Codes** from the **Diagnostic Menu** and press **ENTER**.

Diagnostic codes
2/2
Read Codes
▶Erase Codes

Erase Fault Codes
Are you sure?

Erase Fault Codes
Turn Key on With engine off.

Erase Fault Codes
erased.

2) Use the **EXIT** buttons reuntn **Diagnostic Codes Menu**

5. Warranty and Service

5.1 Limited One Year Warranty

THIS WARRANTY IS EXPRESSLY LIMITED TO PERSONS WHO PURCHASE AUTOPHIX PRODUCTS FOR PURPOSES OF RESALE OR USE IN THE ORDINARY COURSE OF THE BUYER'S BUSINESS.

AUTOPHIX electronic product is warranted against defects in materials and workmanship for one year (12 months) from date of delivery to the user.

This warranty does not cover any part that has been abused, altered, used for a purpose other than for which it was intended, or used in a manner inconsistent with instructions regarding use. The exclusive remedy for any automotive meter found to be defective is repair or replacement, and AUTOPHIX shall not be liable for any consequential or incidental damages.

Final determination of defects shall be made by AUTOPHIX in accordance with procedures established by AUTOPHIX. No agent, employee, or representative of AUTOPHIX has any authority to bind AUTOPHIX to any affirmation, representation, or warranty concerning AUTOPHIX automotive meters, except as stated herein.

5.2 Service Procedures

If you have any questions, please contact your local store, distributor or visit our Website at www.autophix.com .
If it becomes necessary to return the scan tool for repair, contact your local distributor for more information.