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IMPORTANT: Before operating or maintaining this unit, please read this manual carefully, paying extra attention to the safety warnings and precautions.

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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.
- 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.

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1. Using the Manual

This manual contains device usage instructions.

Some illustrations shown in this manual may contain modules and optional equipment that are not included on your system. Contact your sales representative for availability of other modules and optional tools or accessories.

1.1 Conventions

The following conventions are used.

Bold Text

Bold emphasis is used to highlight selectable items such as buttons and menu options.

Example:

- Tap **OK.**

Terminology

The term “select” means highlighting a button or menu item and tapping it to confirm the selection.

Notes and Important Messages

The following messages are used.

Notes

A NOTE provides helpful information such as additional explanations, tips, and comments.

Important

IMPORTANT indicates a situation which, if not avoided, may result in damage to the test equipment or vehicle.

Hyperlinks

Hyperlinks, or links, that take you to other related articles, procedures, and illustrations are available in electronic documents. Blue colored text indicates a selectable hyperlink.

Illustrations

Illustrations used in this manual are samples, the actual testing screen may vary for each vehicle being tested. Observe the menu titles and on-screen instructions to make correct option selection.

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 (ARB) 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 of “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.

2.2 Oil/Service Reset

The Engine Oil Life System calculates when to change the engine oil and filter based on vehicle use. An oil change is required whenever indicated by the display and according to the recommended maintenance schedule. Whenever the oil is changed, reset the system so it can calculate when the next oil change is required. If a situation occurs where the oil is changed prior to a service indicator being turned on, also reset the system.

2.3 EPB

The EPB is a system which controls the brake force by pulling the parking cable as in conventional existing parking brakes. EPB system includes a DC motor, a gearbox, a screw, a nut, a current sensor, a Hall-effect force sensor, an acceleration sensor and an ECU.

Generally, if a driver or a high level system operates the EPB system, the controller calculates a target force from the parking cable based on the car mass as well as the inclination of the road as measured by the acceleration sensor. The EPB increases the brake force by pulling the parking cable using the DC motor until the brake force reaches the target force. Brake force is measured by the Hall-effect force sensor.

2.4 ABS and SRS Systems

ABS - Anti-lock Braking System in most vehicles is made up of an electronic hydraulic pump of two, three or most commonly four Wheel Speed Sensors (WSS), a G-force sensor, a Vehicle Speed Sensor and an ABS Control Module (EBCM). The EBCM is constantly monitoring the WSS, the Vehicle Speed Sensor, and the G-sensor.

Diagnosing an ABS problem should always start with a visual inspection of all brake components, then you will need to retrieve ABS DTCs to tell you where the problem is.

SRS - Supplemental Restraint System is made up of Impact Sensors, a Control Module, and Airbags. When the impact sensors detect a collision they send an extremely fast signal to the control module, which relays that signal to the airbags, deploying them to help prevent vehicle occupants from hitting interior objects such as steering wheels, dashboards, and the like. When the control module detects a problem with the airbags or sensors the Malfunction Indicator Light (MIL) will turn on.

2.5 SAS Review

SAS, **Steering Angle Sensor**, measures the rotation angle, angle velocity and direction of the steering wheel, providing information on the direction in which the driver wishes to go. Steering angle sensors are required for systems such as ESC and are also used in electric

power steering and active steering systems (EPS or AFS) as well as parking assistance systems and curve lights.

A scan tool can be used to obtain these data in degrees. The SAS is located in a sensor cluster in the steering column. The cluster always has more than one steering position sensor for redundancy and to confirm data. The ESC module must receive two signals to confirm the steering wheel position. These signals are often out of phase with each other.

Many vehicles require the SAS be reset or recalibrated after an alignment is performed or parts in the steering system are replaced.

There are three types of reset procedures, systems that self calibrate on their own, vehicles that require specific wires or buttons be pressed and, systems that require recalibration with a scan tool.

Self-Calibration

Some newer vehicles can auto calibrate by having the wheel turned from lock to lock and then centered and cycling the key.

Scan Tool Steering Angle Sensor Reset

There are many options for scan tools to reset SASs. Some tools are even integrated into an alignment system. But, most tools recommend that the calibration be performed on a level surface. Also, it is a good idea to perform a lock-to-lock turn to complete the calibration.

2.6 DPF Review

A **Diesel Particulate Filter**, often referred to as the DPF is a device designed and integrated into the Diesel Engine Exhaust Systems to trap and remove Diesel Particulate Matter or Soot from the exhaust gasses of the diesel engine. A DPF works in conjunction with the oxidation catalyst and EGR valve to remove a majority of the NOx, particulate matter and unburned hydrocarbons from burned diesel fuel. The result of DPF is greater economy, improved smoothness and a reduction of harmful emissions.

The soot trapped in DPF will partially block your DPF causing the DPF/CAT light to illuminate on the dash (normally when 45%

blockage is reached) at which point regeneration is required to get the DPF back in to safety zone.

DPF Light ON

When the DPF light appears on the dash intermittently, this means there is a partial blockage in your DPF and a regeneration process is required. If you ignore it and keep on driving, eventually it will stay on permanently and in most severe cases brings on the Engine Management Light and even the Coil Light. If this happens, you will lose all power and the vehicle will fall into "Limp Mode".

Regeneration Process

Regeneration is the DPF's way to clear the blockage through continuously burning it at higher temperatures and allowing the now harmless produce to escape through the exhaust system. There are two types of regeneration processes for vehicles.

Passive Regeneration

Passive regeneration is an automated regeneration which often occurs on drives where there is prolonged high exhaust temperatures, for example, on motorway-type runs. This needs no intervention from the engine control unit. ECM monitors driving style and selects a suitable time to employ regeneration. Regeneration continues until ECM calculates that all the soot has been burned. But sometimes the required long journey motorway-type trip necessary to complete a passive regeneration of the DPF system is not attained, the regeneration fails. So manufacturers have had to adapt the technology and design an "active" regeneration process controlled by the ECM.

Active Regeneration

When the diesel particulate (soot) loading in the DPF reaches a pre-set limit (normally around 45%), the ECU will make minor adjustments to the fuel injection timing system which will in turn increase the exhaust temperatures and help initiate the DPF regeneration process. This is a smart way of getting a motorway-type temperature to build up inside the DPF system and begin a full regeneration to bring the unit back to good health.

2.7 BMS Review

The battery management system (BMS) is a critical electronic system of vehicle that monitors and manages a rechargeable battery. The purpose of the BMS is to guarantee safe and reliable battery operation by monitoring and evaluating the battery states, including state of charge, state of health, and state of life, controlling the charging and discharging of the battery, balancing the cell etc. As an electrochemical product, a battery acts differently under different operational and environmental conditions.

3. Using the Scan Tool

3.1 Tool Description



1) **CONNECTOR** -- Connects the scan tool to the vehicle's Data Link Connector (DLC).

2) **EXTERNAL DC POWER PORT** – Connects the 12 volt power adapter to power the tool when disconnected from the vehicle.

3) **LCD DISPLAY** -- Indicates test results. TFT color display (320 x 240 dpi).

4) **FUNCTION BUTTON** – Corresponds with "buttons" on screen for executing commands.

5)  **ESC BUTTON** -- Cancels a selection (or an action) from a menu or returns to the previous screen.

6)  **HELP BUTTON** -- Provides help information and Code Breaker function.

7)  **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. When looking up DTC, it is used to change value of selected character.

8)  **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. When looking up DTC, it is used to change value of selected character.

9)  **LEFT SCROLL BUTTON** -- When look up DTC definitions, moves to previous character and views additional information on previous screens if DTC definition covers more than one screen; views previous screen or previous frames of recorded data. It is also used to view previous trouble code when viewing DTCs.

10)  **RIGHT SCROLL BUTTON** -- When look up DTC definitions, moves to next character and view additional information on next screens if DTC definition covers more than one screen; views next screen or next frames of recorded data.. It is also used to view next trouble code when viewing DTCs.

11)  **OK BUTTON** -- Confirms a selection (or an action) from a menu.

12) **USB CONNECTOR** -- Connects the scan tool to the PC for printing.

13) **SD CARD SLOT –** Holds the System SD card.

3.2 Specifications

1) Display: TFT color display (320 x 240 dpi)
2) Operating Temperature: 0°C to 60°C (32°F to 140°F)
3) Storage Temperature: -20°C to 70°C (-4°F to 158°F)
4) External Power: 12.0 V to 18.0 V power provided via vehicle battery or adapter.
5) Dimensions:

Length	Width	Height
212 mm (8.35”)	110.5 mm (4.35”)	37.5 mm (1.48”)

6) Weight: 0.28 kg (without wire) 0.484 kg (with wire)

3.3 Accessories Included

1) **OBD II Cable** -- Provides power to tool and communicates between tool and vehicle.
2) **USB Cable** -- Used to print retrieved data.
3) **SD Card** -- Contains the scan tool’s operation software and applications.
4) **Carry Case** -- A hard case to store the scan tool when not in use.

3.4 Keyboard

No solvents such as alcohol are allowed to clean the keypad or display. Use a mild nonabrasive detergent and a soft cotton cloth. Do not soak the keypad as the keypad is not waterproof.

3.5 Power

Before using the scan tool, you must provide power to the scan tool. There are two methods for providing power to the scan tool.

- DC external power adapter.
- Cable connection to vehicle.

During vehicle testing, power for the scan tool is usually provided through the vehicle cable connection. When the scan tool is not

connected to a vehicle, the scan tool can be powered with an AC/DC external power adapter.

While the scan tool is powered via the vehicle Data Link Connector (DLC), just follow the steps below to turn on the scan tool:

1) Connect the Cable to scan tool.

2) Find DLC on vehicle.

- ***A plastic DLC cover may be found for some vehicles and you need to remove it before plugging the OBD II cable.***

3) Plug the cable to the vehicle's DLC.

4) Power up the scan tool, and wait for the **Main Screen** to appear (Figure 3.1).



Figure 3.1

3.6 System Setup

The System Setup functions allow you to adjust default settings and view information about the scan tool.

1) **Language:** Selects the desired language.

2) **Unit of Measure:** Sets the unit of measure to English or Metric.

3) **Beep Set:** Turns on/off beep.

4) **LCD Test:** Checks if the LCD display is working properly.

5) **Key Test:** Checks if the keyboard is working properly.

6) **About:** Provides information of the scan tool.

- ***Settings of the unit will remain until change to the existing settings is made.***

To Enter the Setup Menu

From the **Main Screen:** Use **LEFT/RIGHT** scroll button to select **Setup**, and press the **OK** button. Following the instructions to do adjustments and settings could make your diagnosis more conveniently and easily (Figure 3.2).

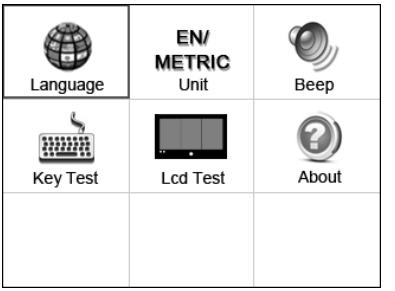


Figure 3.2

Language Setup

- ***English is the default language.***

1) From **System Setup** screen, use the **UP/DOWN** scroll button and **LEFT/RIGHT** scroll button to select **Language**, and press the **OK** button.

2) Use the **UP/DOWN** scroll button to select the desired language and press the **OK** button to save your selection and return to previous screen (*Figure 3.3*).

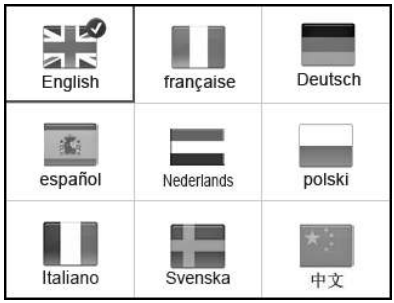


Figure 3.3

Unit of Measure

- ***Metric is the default measurement unit.***

1) From **System Setup** screen, use the **LEFT/RIGHT** scroll button to select **EN/METRIC Unit** and press the **OK** button.

2) From **Unit of Measure** screen, use the **LEFT/RIGHT** scroll button to select the desired unit of measurement (Figure 3.4).

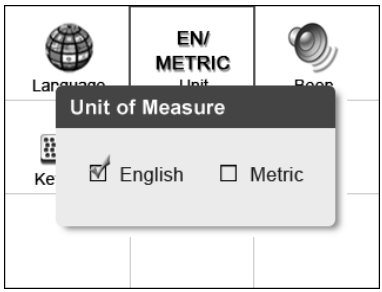


Figure 3.4

3) Press the **OK** button to save your selection and return to the previous menu. Or, press the **ESC** button to exit without saving.

Beep Set

- ***The default setting is Beep On.***

1) From **System Setup** screen, use the **UP/DOWN** scroll button and **LEFT/RIGHT** scroll button to select **Beep** and press the **OK** button.

2) From **Beep Set** menu, use the **LEFT/RIGHT** scroll button to select **ON** or **OFF** to turn on/off the beep (Figure 3.5).

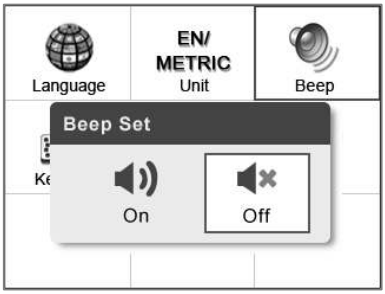


Figure 3.5

3) Press the **OK** button to save your selection and return to the previous menu. Or, press the **ESC** button to exit without saving.

Key Test

The Key Test function checks if the keyboard is working properly.

1) From **System Setup** screen, use the **UP/DOWN** scroll button and **LEFT/RIGHT** scroll button to select **Key Tes**t, and press the **OK** button.

2) Press any key to start test. When you press a key, the edge around corresponding key on the screen should turn to red. Otherwise, the key is not functioning properly.

3) Double press **ESC** to return to previous menu.

LCD Test

The **LCD Test** function checks if the LCD display is working normally.

1) From **System Setup** screen, use the **UP/DOWN** scroll button and **LEFT/RIGHT** scroll button to select **LCD Test**, and press the **OK** button.

2) Look for missing spots in the red, green, blue, black and white LCD display.

3) When completed, press the **ESC** button to exit.

About

The **About** function allows viewing of some important information such as serial number and software version number of the scanner.

1) From **System Setup** screen, use the **UP/DOWN** scroll button and **LEFT/RIGHT** scroll button to select **About** and press the **OK** button; wait for the **About** screen to appear.

2) View tool information on screen (Figure 3.6). Press the **ESC** button to exit.



Figure 3.6

3.7 Vehicle Coverage

On the basis of all OBD II compliant vehicles, including those equipped with universal protocol -- Control Area Network (CAN), MaxiCHECK Series Scanner expands vehicle system coverage and offers more diagnostic power to the vehicle technicians. Featuring expanded global vehicle coverage, the scan tool offers technicians a significant improvement on model years covered by supported manufactures. In addition to adding new vehicle coverage through 2011/2012, we've also worked backwards to include non-OBD II vehicles, which can be diagnosed by setting up with optional OBD I adaptors.

For OBD II Diagnostics: 1996 and newer vehicles.

For Oil Light/Service Reset: ACURA, HONDA, INFINITI, ISUZU, LEXUS, NISSAN, SCION, TOYOTA, ABARTH, ALFA ROMEO, AUDI, BENZ, BMW, CITROEN, FIAT, JAGUAR, LANCIA, LAND ROVER, MINI, OPEL, PEUGEOT, SAAB, SMART, SPRINTER, VOLKSWAGEN, VOLVO, CHRYSLER, FORD, GM, JEEP, LINCOLN, MERCURY, OIDSMOBILE

For EPB Service: HONDA, TOYOTA, AUDI, BENZ, BMW, CITROEN, JAGUAR, LANDROVER, OPEL, PEUGEOT, RENAULT, VOLKSWAGEN, VOLVO.

For ABS/SRS : GM, CHRYSLER, FORD, AUDI, ABARTH, ALFA, BENZ, BMW, BENTLEY, BUGATTI, CITROEN, DACIA, EU FORD, FIAT, JAGUAR, LANDROVER, LANCIA, MINI, MAYBACH, OPEL, PEUGEOT, PORSCHE, RENAULT, SAAB, SMART, SEAT, SKODA, SPRINTER, VOLKSWAGEN, VAUXHALL, VOLVO, AU FORD, HOLDEN, ACURA, DAEWOO, HONDA, HYUNDAI, ISUZU, INFINITI, KIA, LEXUS, MAZDA, MITSUBISHI, NISSAN, SCION, SUBARU, SUZUKI, TOYOTA.

For SAS: AU FORD, ACURA, HONDA, HYUNDAI, INFINITI, KIA, LEXUS, NISSAN, SCION, SUBARU, SUZUKI, TOYOTA, ABARTH, ALFA, BENZ, BMW, CITROEN, DACIA, EU FORD, FIAT, JAGUAR, LANCIA, LAND ROVER, MINI, MAYBACH, OPEL, PEUGEOT, RENAULT, VAUXHALL, FORD, CHRYSLER, GM

For DPF: CITROEN, PEUGEOT, BMW, RENAULT, ALFA, BENZ, EU FORD, FIAT, JAGUAR, LANCIA, LAND ROVER, MINI, OPEL, VAUXHALL, FORD, CHRYSLER, GM, AU FORD, ACURA, HONDA, INFINITI, LEXUS, MAZDA, NISSAN, SCION, TOYOTA.

For BMS: VOLKSWAGEN, FORD, BMW, LAND ROVER, SKODA, SEAT, MINI, JAGUAR, BUGATTI, BENTLEY, AUDI.

3.8 Product Troubleshooting

Vehicle Linking Error

A communication error occurs if the scan tool fails to communicate with the vehicle's ECU (Engine Control Unit). You need to do the followings to check up:

- ✓ Verify that the ignition is ON.
- ✓ Check if the scan tool's 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 continue the testing.
- ✓ Verify the control module is not defective.

Operating Error

If the scan tool freezes, then an exception occurs or the vehicle's ECU (Engine Control Unit) is too slow to respond to requests. You need to do the following to reset the tool:

- ✓ Reset the scan tool.
- ✓ Turn the ignition off and wait for about 10 seconds. Turn the ignition back to on and continue the testing.

Scan Tool Doesn't Power Up

If the scan tool won't power up or operates incorrectly in any other way, you need to do the following to check up:

- ✓ Check if the scan tool's connector is securely connected to the vehicle's DLC;
- ✓ Check if the DLC pins are bent or broken. Clean the DLC pins if necessary.
- ✓ Check vehicle battery to make sure it is still good with at least 8.0 volts.

4. Playback Data

The Playback Data function allows viewing data from last test recorded by the scan tool.

- ***NOTE:*** *The amount of files that can be saved depends on the space available in the SD card.*

4.1 Review Data

1) Use the **LEFT/RIGHT** scroll button to select **Playback** from **Main Screen** (*Figure 3.1*), and press the **OK** button. Wait for the **Review data** screen to appear. The recorded files are identified by different diagnostic functions, such as OBD II diagnostics, OilReset, ABS/SRS, EPB, SAS and DPF and will be saved in corresponding folders.

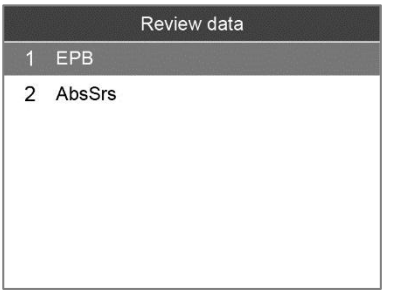


Figure 4.1

2) Select the desired item you want to review and press **OK** button to continue.

   - If no data from previously tested vehicle is recorded, a message "**No data available**" shows on the screen.

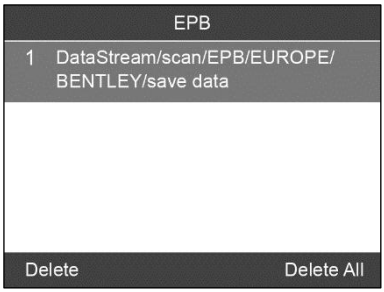


Figure 4.2

3) Use the **UP/DOWN** scroll button to select the desired item on the screen, and press the **OK** button.

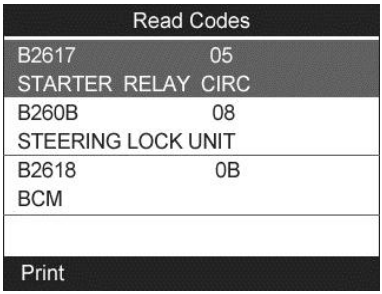


Figure 4.3

4.2 Delete Data

By selecting **Delete** on the screen, you are allowed to erase the selected data on the scan tool. Review the recordings thoroughly before erasing. You could also erase all recordings by select **Delete All**.

- ***NOTE:*** *Don't use* ***Delete All*** *unless you are definitely sure what you are going to proceed.*

4.3 Print Data

Print option allows you to print the recorded files to your computer and then to the printer.

For more details, please refer to chapter ***12.1 Print Data***.

5. OBD II Diagnostics

The OBD II Diagnostics function is a fast-access option that allows you to carry out a quick test on the engine system of OBD II vehicles.

When more than one vehicle control module is detected by the scan tool, you will be prompted to select the module where the data may be retrieved. The most often to be selected are the Powertrain Control Module [PCM] and Transmission Control Module [TCM].

***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) Select **OBD II** from the **Main Screen** (*Figure 3.1*).
6) Press the **OK** button to wait for the Menu to appear. A sequence of messages displaying the OBD II 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) more than three times, a "LINKING ERROR!" message shows up on the display.***

✓ Verify that the ignition is ON.

✓ Check if the scan tool's OBD II connector is securely connected to the vehicle's DLC.

✓ Verify that the vehicle is OBD II compliant.

✓ Turn the ignition off and wait for about 10 seconds. Turn the ignition back to on and repeat the procedure from step 5.

- ***If the "LINKING ERROR" message does not go away, then there might be problems for the scan tool to communicate with***

the vehicle. Contact your local distributor or the manufacturer's customer service department for assistance.

7) View a summary of system status (MIL status, DTC counts, Monitor status) on screen (*Figure 5.1*). Press **OK** button for **Diagnostic Menu** (*Figure 5.3*) to come up.

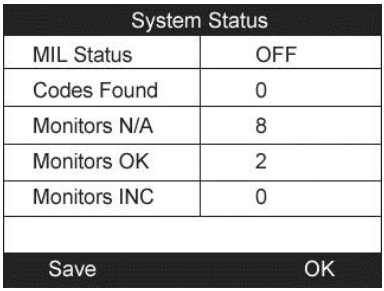


Figure 5.1

- If more than one module is detected, you will be prompted to select a module before testing.

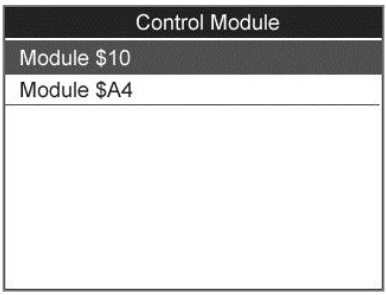


Figure 5.2

- Use the **UP/DOWN** scroll button to select a module and press the **OK** button.

5.1 Read Codes

- ***Reading Codes can be done with the key on engine off (KOEO) or with the key on engine running (KOER).***
- ***Stored Codes are also known as "hard codes", which are fault***

codes, or trouble codes that have been stored in the vehicle computer memory because the faults have reoccurred for more than a specified amount of key-cycles. These codes will cause the control module to illuminate the malfunction indicator light (MIL) when emission-related fault occurs.

- ***Pending Codes are also referred to as "maturing codes" or "continuous monitor codes". They indicate problems that the control module has detected during the current or last driving cycle but are not considered serious yet. Pending Codes will not turn on the malfunction indicator lamp (MIL). If the fault does not occur within a certain number of warm-up cycles, the code clears from memory.***
- ***Permanent Codes are DTCs that are "confirmed" and are retained in the non-volatile memory of the computer until the appropriate monitor for each DTC has determined that the malfunction is no longer present and is not commanding the MIL on. Permanent DTC shall be stored in non-volatile memory and may not be erased by any diagnostic services or by disconnecting power to ECU.***

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

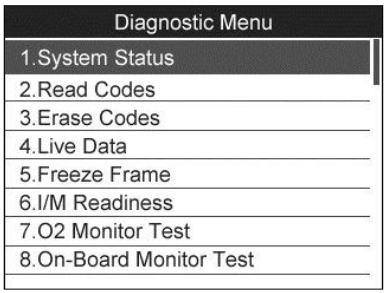


Figure 5.3

2) Use the **UP/DOWN** scroll button to select **Stored Codes** or **Pending Codes** from the **Read Codes** menu and press the **OK** button.

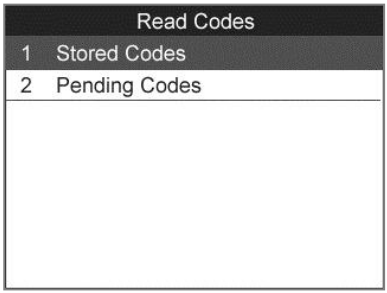


Figure 5.4

- If there is not any Diagnostic Trouble Code, the display indicates "**No (pending) codes are stored in the module!**" Wait a few seconds or press any key to return to the previous screen.

NOTE: *Permanent Codes function is available for merely vehicles supporting the CAN protocols.*

3) View DTCs and their definitions on screen.

4) If more than one DTC is found, use the **UP/DOWN** scroll button to check all the codes.

- If retrieved DTCs contain any manufacturer specific or enhanced codes, a "Manufacturer specific codes are found! Press any key to select vehicle make!" message comes up prompting you to select vehicle manufacturer to view DTC definitions. Use **UP/DOWN** scroll button to select manufacturer and then press the **OK** button to confirm.

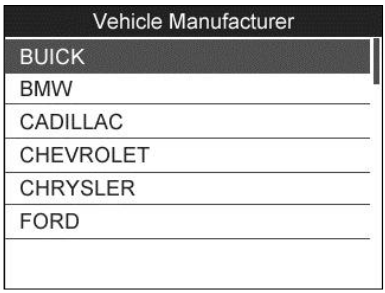


Figure 5.5

- If the manufacturer of your vehicle is not listed, use the **UP/DOWN** scroll button to select **Other** and press the **OK** button.

5.2 Erase Codes

***CAUTION**: Erasing the Diagnostic Trouble Codes may allow the scan tool to delete not only the codes from the vehicle's on-board computer, but also "Freeze Frame" data and manufacturer specific enhanced data. Further, the I/M Readiness Monitor Status for all vehicle monitors is reset to Not Ready or Not Complete status. Do not erase the codes before the system has been checked completely by a technician.*

***NOTE**: Erasing codes does not mean that trouble codes in ECU have been eliminated completely. As long as there is fault with the vehicle, the trouble codes keeps on presenting.*

◆ ***This function is performed with key on engine off (KOEO). Do not start the engine.***

1) Use the **UP/DOWN** scroll buttons to select **Erase Codes** from **Diagnostics Menu** and press the **OK** button (*Figure 5.3*).

2) A warning message comes up asking for your confirmation (Figure 5.6).

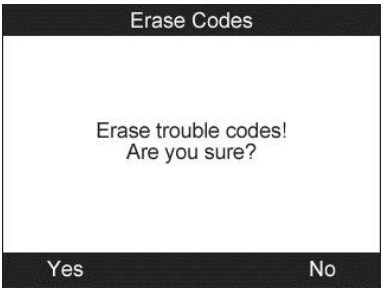


Figure 5.6

- If you do not want to proceed with erasing codes, press **ESC** button or select **NO** to exit and return to previous screen.

3) Press the **OK** button to confirm.

- If the codes are cleared successfully, an "**Erase Done!**" confirmation message shows on the display (Figure 5.7).

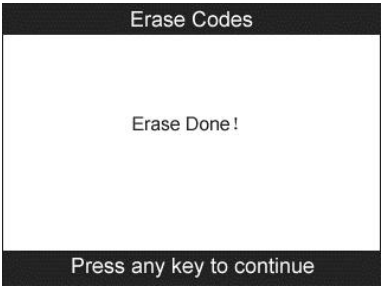


Figure 5.7

- If the codes are not cleared, then an "**Erase Failure. Turn Key on with Engine off!**" message appears (*Figure 5.8*).

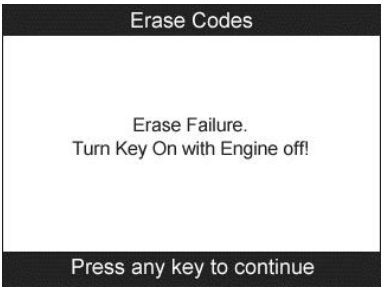


Figure 5.8

4) Press any button to return to **Diagnostic Menu.**

5.3 Live Data

In this function, you can not only read the live data but also record data for later review.

View Data

The View Data function allows viewing of live or real time PID data of vehicle's computer module(s).

1) To view live data, use the **UP/DOWN** scroll button to select **Live Data** from **Diagnostic Menu** and press the **OK** button (*Figure 5.3*).

2) Wait a few seconds while the scan tool validates the PID MAP (Figure 5.9).

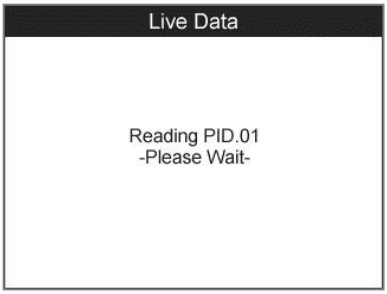


Figure 5.9

View Complete List

1) To view complete set of data, use **UP/DOWN** scroll button to select **Complete List** from **Live Data** menu and press the **OK** button (Figure 5.10).

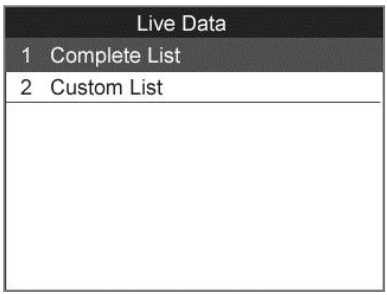


Figure 5.10

2) View live PIDs on the screen. Use the **UP/DOWN** scroll button for more PIDs if additional information is available on more than one page (Figure 5.11).

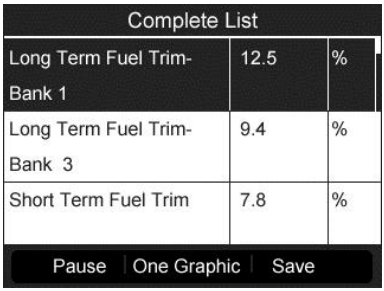


Figure 5.11

- If the "**Graphics**" on the bottom appears when a PID is highlighted, graphic information is available. Select **Graphics** to view graph (*Figure 5.12*). PID name, current value, maximum and minimum values are displayed on the screen.

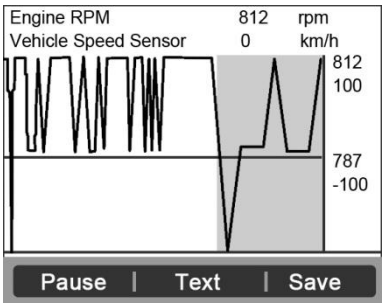


Figure 5.12

- If the "**Merge Graph**" on the bottom appears when a PID is selected to view, merged graph information is available (Figure 5.13).

*NOTE: **Merge Graph** can be used to compare two related parameters in graphic mode, which is especially convenient in the **Custom List** option where you could select two interacted parameter to merge and see their relationship.*

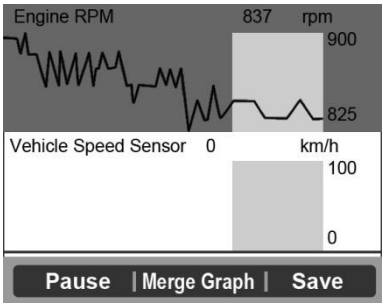


Figure 5.13

- Select **Text** to return to text viewing of PID data.
- Select **Save** to record retrieved live data and PID graphs.
- Select **Pause** to suspend viewing. You could resume the viewing process again by selecting **Start**.

3) Press the **ESC** button to return to the previous menu.

View Custom List

1) To view customized PID data, use the **UP/DOWN** scroll button to select **Custom List** from **Live Data** menu and press the **OK** button (*Figure 5.10*).

2) Use the **UP/DOWN** scroll button to move up and down to the desired items and click **Select** button to confirm. The selected parameters are marked with ticks on the left (Figure 5.14).

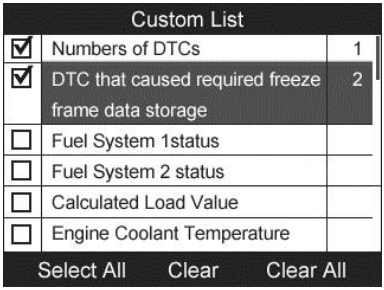


Figure 5.14

- The number to the right of selected item indicates sequence of this item.
- If you want to deselect the item, press **Clear** button.
- To select all the items on the screen, press **Select All** button. To clear all the selected items on the screen, press **Clear All** button.

3) Press the **OK** button to view selected PIDs on screen.

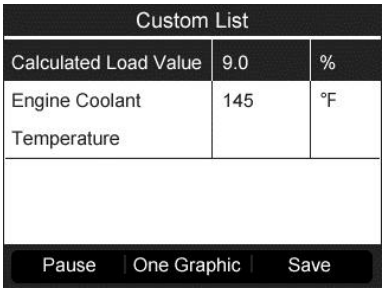


Figure 5.15

4) Use the **ESC** button to return to the previous menu.

Record Data

The Record Data function allows recording vehicle modules' Parameter Identification (PID) data to help diagnose intermittent vehicle problems. You could save data files to the SD card and then use the Playback function to view the saved files.

NOTE: *The length of time for each frame varies per vehicle. Generally, one frame of data is about 1/4 second, or 4 frames per second.*

1) To record live data, with the live data screen displaying, select **Save** on the bottom. The scan tool will start timing to record retrieved live data and PID graphs.

- If you record live data under text mode, following screen shows:

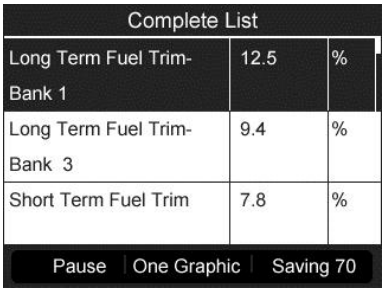


Figure 5.16

- If you record live data under graph mode, following screen shows:

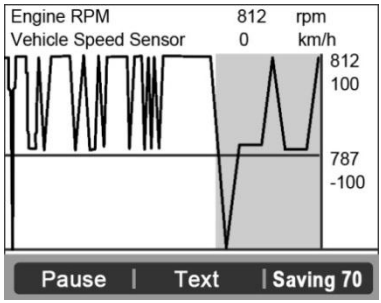


Figure 5.17

***NOTE**: The scan tool can only playback text data even though the data is saved in graphic mode.*

2) When there is not enough memory space, a warning message prompting to delete previously recorded data.



Figure 5.18

- If you wish to delete the data, select **OK** and then go to **Playback** screen to delete the data.

3) Select **Pause** to suspend recording. You could resume the recording process again by selecting **Start**.

4) You may review the saved data in **Playback** function.

5) Press **ESC** button to exit.

5.4 Freeze Frame

Freeze Frame Data allows the technician to view the vehicle's operating parameters at the moment a DTC (Diagnostic Trouble Code) is detected. For example, the parameters may include engine speed (RPM), engine coolant temperature (ECT), or vehicle speed sensor (VSS) etc. This information will aid the technician by allowing the parameters to be duplicated for diagnostic and repair purposes.

1) To view freeze frame data, use the **UP/DOWN** scroll button to select **Freeze Frame** from **Diagnostic Menu** and press the **OK** button (*Figure 5.3*).

2) Wait a few seconds while the scan tool validates the PID MAP.

3) If retrieved information covers more than one screen, use the **DOWN** scroll button, as necessary, until all the data have been shown up (Figure 5.19).

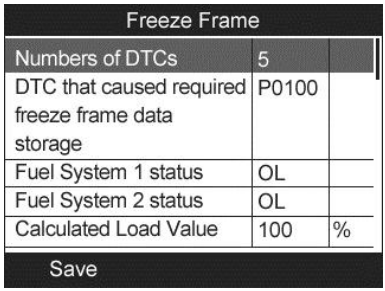


Figure 5.19

- If there is no available freeze frame data, an advisory message "**No freeze frame data stored!**" shows on the display.

4) Select **Save** to record freeze frame. A confirming message "**Save success**!" shows on the display and scan tool return to previous menu.

5) If you don't want to save the freeze frame data, press **ESC** button to return to previous screen.

5.5 Retrieve I/M Readiness Status

I/M Readiness function is used to check the operations of the Emission System on OBD II compliant vehicles. It is an excellent function to use prior to having a vehicle inspected for compliance to a state emission program.

CAUTION: *By clearing trouble codes you also clear the readiness status for the individual emission system readiness tests. In order to reset these monitors, the vehicle must be driven through a complete drive cycle with no trouble codes in memory. Times for reset vary depending on vehicle.*

Some latest vehicle models may support two types of **I/M Readiness** tests:

A. ***Since DTCs Cleared*** - indicates status of monitors since the DTCs are erased.

B. ***This Drive Cycle*** - indicates status of monitors since the beginning of the current drive cycle.

An I/M Readiness Status result of "NO" does not necessarily indicate that the vehicle being tested will fail the state I/M inspection. For some states, one or more such monitors may be allowed to be "Not Ready" to pass the emission inspection.

- **OK** -- Indicates that a particular monitor being checked has completed its diagnostic testing.
- **INC** -- Indicates that a particular monitor being checked has not completed its diagnostic testing.
- **N/A** -- The monitor is not supported on that vehicle.

1) Use the **UP/DOWN** scroll button to select I/M Readiness from Diagnostic Menu and press **OK** button (*Figure 5.3*).

2) Wait a few seconds while the scan tool validates the PID MAP.

3) If the vehicle supports both types of tests, then both types will be shown on the screen for selection (*Figure 5.20*).

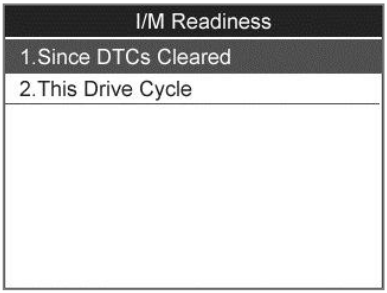


Figure 5.20

4) Use the **UP/DOWN** scroll button, as necessary, to view the status of the MIL light ("**ON**" or "**OFF**") and the following monitors:

For spark ignition engines:

- **MIS --** Misfire Monitor
- **FUEL --** Fuel System Monitor

- **CCM --** Comprehensive Component Monitor
- **EGR** – EGR System Monitor
- **O2S --** O2 Sensors Monitor
- **CAT --** Catalyst Monitor
- **EVAP --** Evaporative System Monitor
- **HTR --** O2 Sensor Heater Monitor
- **AIR --** Secondary Air Monitor
- **HCAT --** Heated Catalyst Monitor

For compression ignition engines:

- **MIS** -- Misfire Monitor
- **FUEL** -- Fuel System Monitor
- **CCM** -- Comprehensive Component Monitor
- **EGR** – EGR System Monitor
- **HCCAT** -- NMHC Catalyst Monitor
- **NCAT** -- NOx Aftertreatment Monitor
- **BP** -- Boost Pressure System Monitor
- **EGS** -- Exhaust Gas Sensor Monitor
- **PM** -- PM Filter Monitor

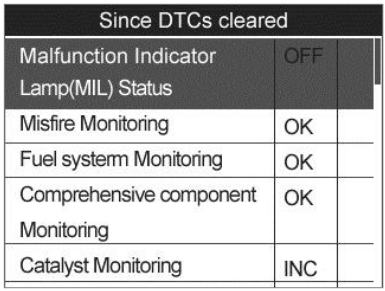


Figure 5.21

1) If the vehicle supports readiness test of "**This Drive Cycle**", a screen of the following displays: (Figure 5.22)

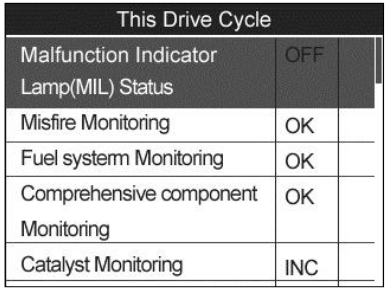


Figure 5.22

2) Use the **UP/DOWN** scroll button for more PIDs if additional information is available on more than one page. Or use the **LEFT/RIGHT** scroll button to view PIDs in the previous/next page.

3) Press the **ESC** button to return to **Diagnostic Menu.**

5.6 O2 Monitor Test

OBD II regulations set by SAE require that relevant vehicles monitor and tests on the oxygen (O2) sensors to identify problems related to fuel efficiency and vehicle emissions. These tests are not on-demand tests and they are done automatically when engine operating conditions are within specified limits. These test results are saved in the on-board computer's memory.

The O2 Monitor Test function allows retrieval and viewing of O2 sensor monitor test results for the most recently performed tests from the vehicle's on-board computer.

The O2 Monitor Test function is not supported by vehicles which communicate using a controller area network (CAN). For O2 Monitor Test results of CAN-equipped vehicles, see chapter *On-Board Monitor Test*.

1) Use the **UP/DOWN** scroll button to select **O2 Monitor Test** from **Diagnostic Menu** and press **OK** button (*Figure 5.3*).

2) Wait a few seconds while the scan tool validates the PID MAP.

3) Use the **UP/DOWN** scroll button to select O2 sensor from **O2**

Monitor Test menu and press the **OK** button (Figure 5.23).

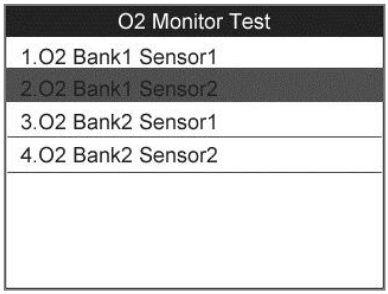


Figure 5.23

- If the vehicle does not support the mode, an advisory message will be displayed on the screen (*Figure 5.24*).

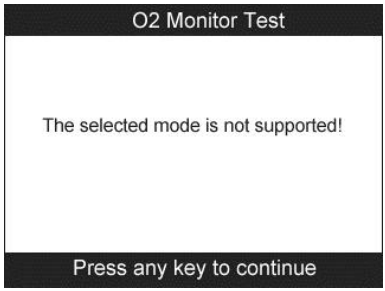


Figure 5.24

4) View test results of selected O2 sensor (Figure 5.25).

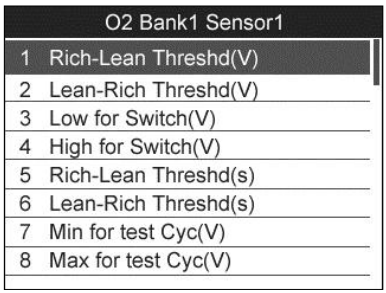


Figure 5.25

5) Use the **UP/DOWN** scroll button to view more screens of data if additional information is available in more than one page.

6) Press the **ESC** button to return to the previous menu.

5.7 On-Board Monitor Test

The On-Board Monitor Test is useful after servicing or after erasing a vehicle's control module memory. The On-Board Monitor Test for non-CAN-equipped vehicles retrieves and displays test results for emission-related power train components and systems that are not continuously monitored. The On-Board Monitor Test for CAN-equipped vehicles retrieves and displays test results for emission-related power train components and systems that are and are not continuously monitored. Test and components IDs are determined by the vehicle manufacturer.

In this test, there are typically a minimum value, a maximum value, and a current value for each monitor. By comparing the current value with the minimum and maximum value, the scan tool will determine if it is OK.

1) Use the **UP/DOWN** scroll button to select **On-Board Monitor Test** from **Diagnostic Menu** and press the **OK** button (*Figure 5.3*).

2) Wait a few seconds while the scan tool validates the PID MAP.

3) The scan tool will prompt you to select the vehicle make.

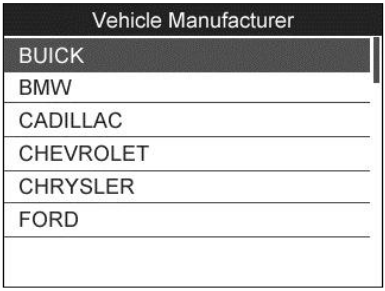


Figure 5.26

4) After you select the vehicle manufacturer, the scan tool shows the

On-Board Monitors tests for specific monitoring systems.

5) From **On-Board Monitor Test** menu, use the **UP/DOWN** scroll button to select a test to view and press the **OK** button.

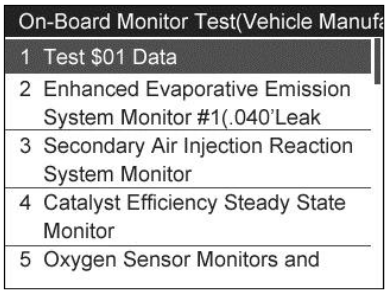


Figure 5.27

- If the vehicle under test does not support the mode, an advisory message will be displayed on the screen.

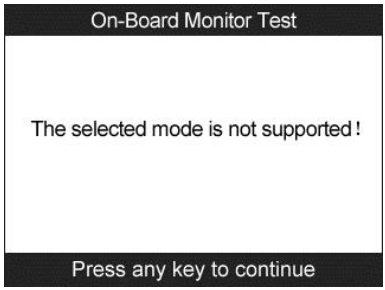


Figure 5.28

- For CAN-equipped vehicles, test selections can be as below:

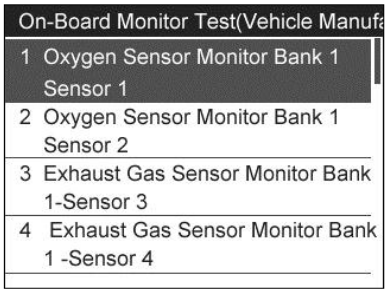


Figure 5.29

6) Use the **UP/DOWN** scroll button to select the desired monitor from **On-Board Monitor Test** menu and press the **OK** button.

7) View test data on screen.

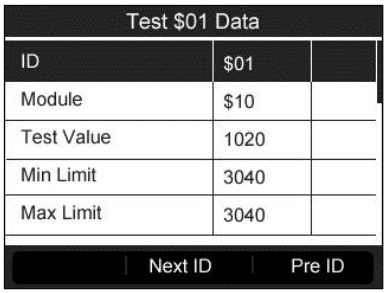


Figure 5.30

- For CAN-equipped vehicles, test results displayed can be as below:

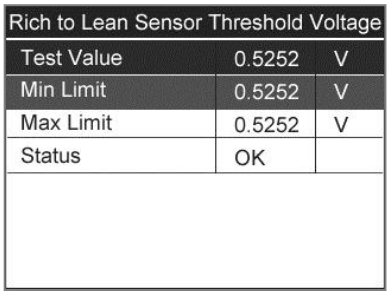


Figure 5.31

8) Press **ESC** button to return to the previous menus.

5.8 Component Test

The Component Test function allows initiating a leak test for the vehicle's EVAP system. The scan tool itself does not perform the leak test, but commands the vehicle's on-board computer to start the test. Different vehicle manufacturers might have different criteria and methods for stopping the test once it has been started. Before starting the Component Test, refer to the vehicle service manual for instructions to stop the test.

1) Use the **UP/DOWN** scroll button to select **Component Test** from **Diagnostic Menu** and press the **OK** button (*Figure 5.3*).

2) Wait for the scan tool to display the **Component Test** menu.

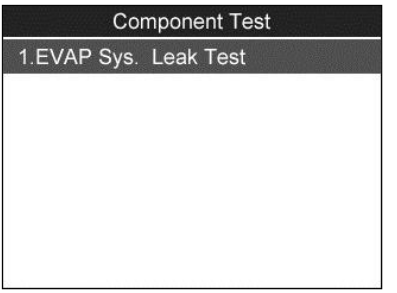


Figure 5.32

3) If the test has been initiated by the vehicle, a confirmation message will be displayed on the screen.

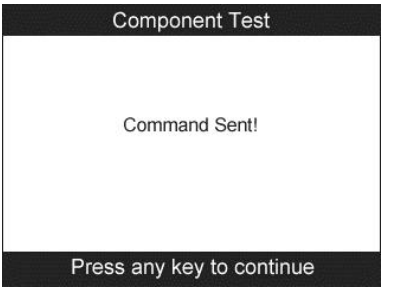


Figure 5.33

- Some vehicles do not allow scan tools to control vehicle systems or components. If the vehicle under test does not support the EVAP Leak Test, an advisory message is displayed on the screen.

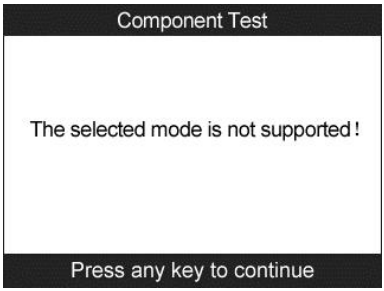


Figure 5.34

4) Wait a few seconds or press any key to return to the previous screen.

5.9 View Vehicle Information

The Vehicle Info. function enables retrieval of Vehicle Identification No. (VIN), Calibration ID Nos. (CINs), Calibration Verification Nos. (CVNs) and In-use Performance Tracking on 2000 and newer vehicles that support Mode 9.

1) Use **UP/DOWN** scroll button to select **Vehicle Info.** from the **Diagnostic Menu** and press **OK** button (*Figure 5.3*).

2) An advisory message comes up to remind you. Wait a few seconds or press any key to continue.

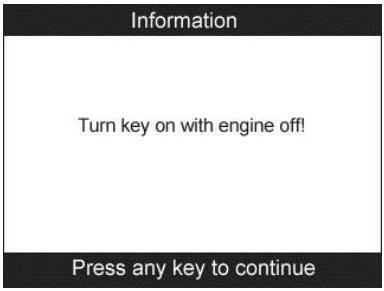


Figure 5.35

3) Wait for the scan tool to display the **Vehicle Info.** menu.

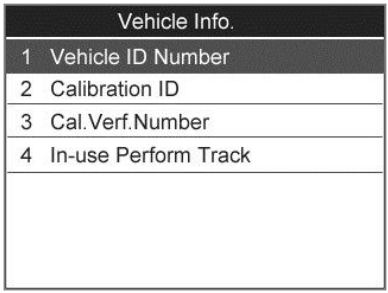


Figure 5.36

- If the vehicle does not support this mode, a message shows on the display warning that the mode is not supported.

4) From **Vehicle Info.** menu, use the **UP/DOWN** scroll button to select an available item to view and press the **OK** button.

5) View retrieved vehicle information on screen.

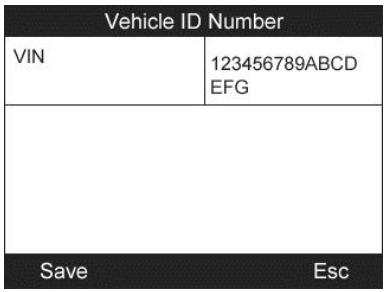


Figure 5.37

6) Press the **ESC** button to return previous menu.

5.10 Modules Present

The Modules Present function allows viewing of the module IDs and communication protocols for OBD II modules in the vehicle.

1) Use the **UP/DOWN** scroll button to select **Modules Present** from **Diagnostic Menu** and press **OK** button (*Figure 5.3*).

2) View modules present with their IDs and communication

protocols.

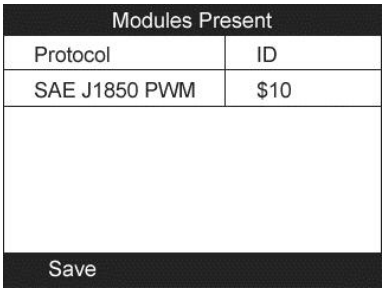


Figure 5.38

3) Select Save to save the modules data and return to the previous menu. Or press **ESC** button to exit.

5.11 DTC Lookup

The DTC Lookup function allows user to search definitions of DTC stored in built-in DTC library.

1) Use the **UP/DOWN** scroll button to select **DTC Lookup** from **Diagnostic Menu** and press the **OK** button (*Figure 5.3*).

2) Wait for the scan tool to display the **DTC Lookup** screen.

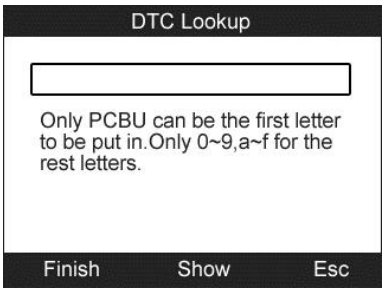


Figure 5.39

3) Select **Show** and a soft keyboard will pop up. Use **LEFT/RIGHT** button and **UP/DOWN** button to move to the desired character, and then press the **OK** button to confirm.

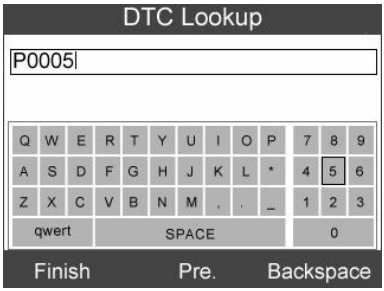


Figure 5.40

4) After you input the DTC code, select **Finish** and the scan tool will display this code's definition on screen.

5) Press **Yes** or **OK** button to proceed. The scan tool will display DTC definition as below.

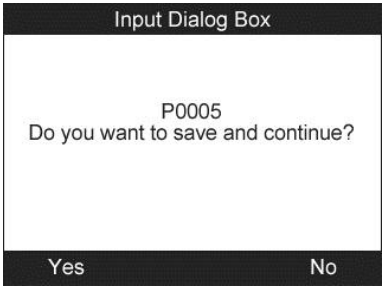


Figure 5.41

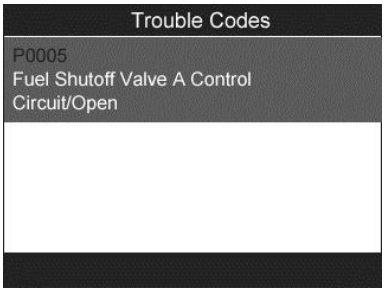


Figure 5.42

- Use the **LEFT/RIGHT** scroll button to view the previous/next DTC.
- Select **Save** to record code definition.
- For manufacturer specific codes, you need to select a vehicle make on an additional screen to look for DTC definitions.
- If definition could not be found (SAE or Manufacturer Specific), the scan tool displays "**Please refer to vehicle service manual!**"

6) Press **No** or **ESC** button to return to the previous menu.

6. BMS

The BMS (Battery Management System) allows the scan tool to evaluate the battery charge state, monitor the close-circuit current, register the battery replacement, activate the rest state of the vehicle, and charge the battery via the diagnostic socket.

- ***NOTE**: This function is not supported by all vehicles. The screens shown in this chapter are examples; actual test screens may vary for each vehicle being tested. Observe the menu titles and onscreen instructions to make correct option selection.*

6.1 General Battery Information

The vehicle may use either a sealed lead-acid battery or an AGM (Absorbed Glass Mat) battery. Lead acid battery contains liquid sulphuric acid and can spill when overturned. AGM battery (known as VRLA battery, valve regulated lead acid) also contains sulphuric acid, but the acid is contained in glass mats between terminal plates.

It is recommended that a replacement aftermarket battery has the same specifications, such as capacity and type, of the battery used in the vehicle. If the original battery is replaced with a different type of battery (e.g. a lead-acid battery is replaced with an AGM battery) or a battery with a different capacity (mAh), the vehicle may require reprogramming the new battery type in addition to performing the battery reset. Consult the vehicle manual for additional vehicle-specific information.

- ***NOTE**: Reprogramming is not supported by the scan tool currently.*

6.2 Battery Operation

The Battery function allows you to evaluate the state of the battery charging and register the battery replacement.

- ***NOTE**: The displayed message will vary depending on the vehicle.*

Take **BMW** as an example:

1) Select **BMS** icon in the **Main Screen** (*Figure 3.1*), choose BMW from the vehicle make screen and select the correct vehicle model to enter the **Power supply (Battery)** menu.

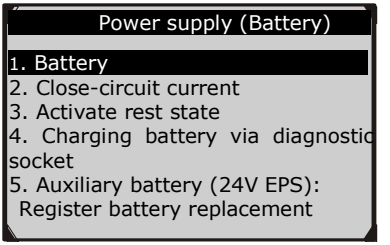


Figure 6.1

2) Select **Battery** option from the **Power supply (Battery)** menu and press the **OK** button. The screen displays as below.

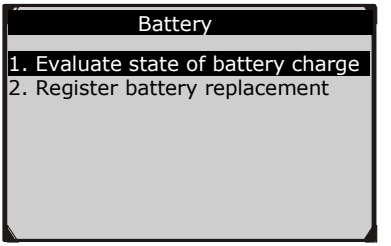


Figure 6.2

Evaluate State of Battery Charge

This function allows reading the measured data from the power management system, determining the status of the battery charge, and displaying the battery charge status histogram.

1) Select **Evaluate state of battery charge** in the **Battery** menu and press the **OK** button.

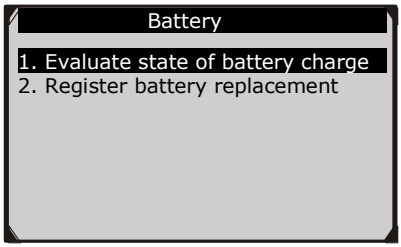


Figure 6.3

2) Read the information on the screen with the **UP/DOWN** scroll button and press **the OK** button to continue.

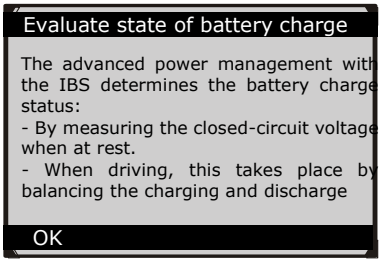


Figure 6.4

To display the battery charge status of the last 5 days:

1) Press the corresponding **FUNCTION** button **[1]** to display the battery charge status of the last 5 days.

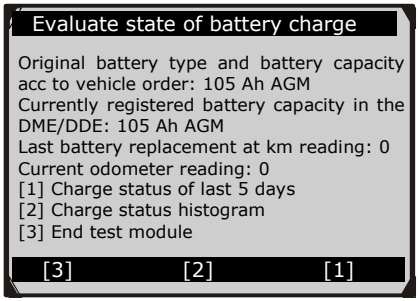


Figure 6.5

2) Read carefully the information on the screen and press the **OK** button to continue.

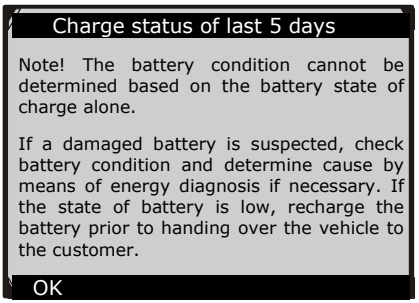


Figure 6.6

3) Check the determined battery charge status and press the **OK** button to end the service function.

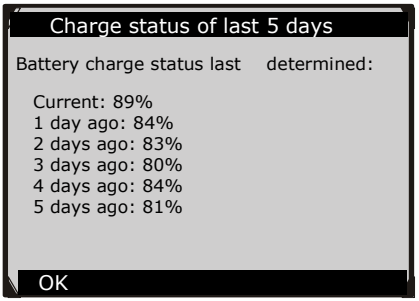


Figure 6.7

To display the battery charge status histogram:

1) Press the corresponding **FUNCTION** button **[2]** to display the battery charge status histogram.

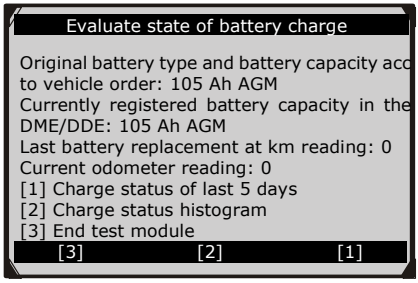


Figure 6.8

2) Read carefully the notice on the screen and press the **OK** button to continue.

3) Check the battery charge status histogram and press the **OK** button to end the service function.

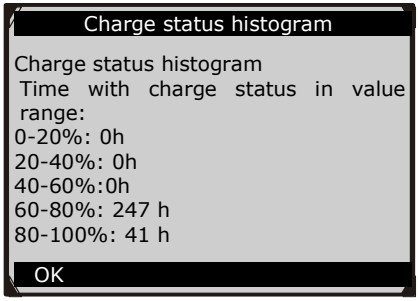


Figure 6.9

The battery charge status histogram will be reset when programming the DME/DDE or registering a battery replacement.

Register Battery Replacement

This option allows displaying the mileage reading of last battery replacement, registering the battery replacement after replacing a new battery and informing the power management system that a new battery has been fitted to the vehicle.

If the battery change is not registered, the power management system will not function properly, which may not provide the battery with

enough charging power to operate the car and limit the functions of individual electrical consumers.

To display the battery history:

1) Select **Register battery replacement** in the **Battery** menu and press the **OK** button.

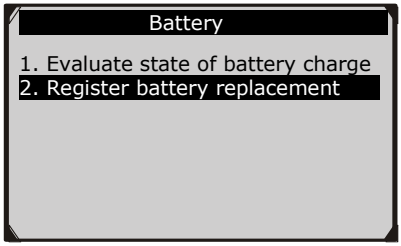


Figure 6.10

2) Press the corresponding **FUNCTION** button **[1]** and a notice screen displays.

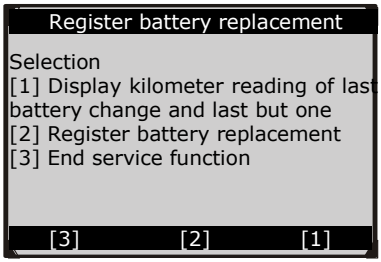


Figure 6.11

3) Read carefully the complete information with the **UP/DOWN** scroll button and press the **OK** button to continue.

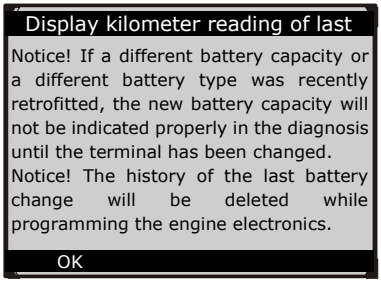


Figure 6.12

4) Check the battery capacity and the battery replacement information on the screen.

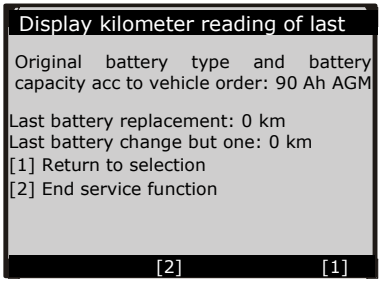


Figure 6.13

5) Press the corresponding **FUNCTION** button **[1]** to return to the selection screen or press the corresponding **FUNCTION** button **[2]** to end the service function.

To register the battery replacement:

1) Press the corresponding **FUNCTION** button **[2]** to continue.

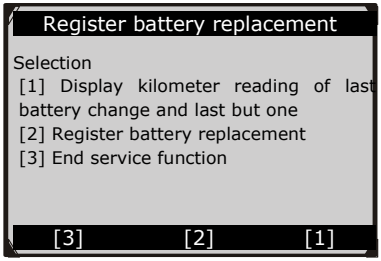


Figure 6.14

2) Read carefully the information on the screen with the **UP/DOWN** scroll button.

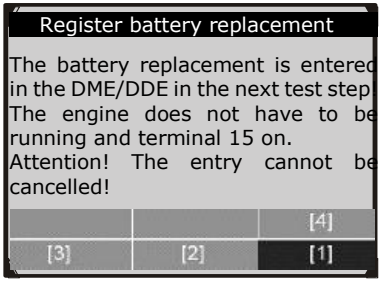


Figure 6.15

The option keys at the bottom of the screen work as below:

[1] Enter the battery replacement with the same capacity

[2] Enter the battery replacement with the different capacity

[3] Enter the battery replacement changing from the normal lead-acid battery (white housing) to AGM battery (black housing)

[4] End service function

✓ If the replaced battery has the same capacity with the original one, select [**1**] with the **LEFT/RIGHT** scroll button and press the **OK** button to continue.

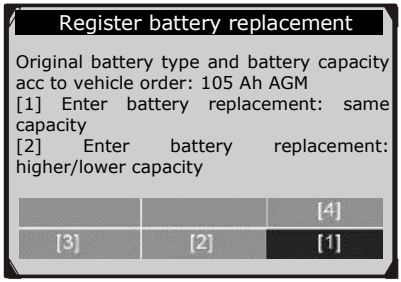


Figure 6.16

✓ Press the corresponding **FUNCTION** button [**Yes**] if the newly installed battery is an original BMW component.

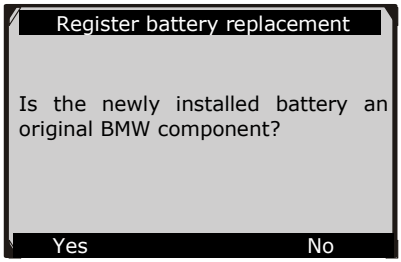


Figure 6.17

NOTE: *If press the corresponding FUNCTION button [No], the tool will register the battery replacement to the engine electronics without entering any code.*

✓ Read carefully the information with the **UP/DOWN** scroll button and press the **OK** button to continue.

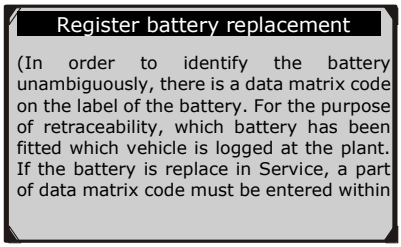


Figure 6.18

✓ Press the corresponding **FUNCTION** button [**Yes**] if there is a data matrix code on the label of the newly installed battery.

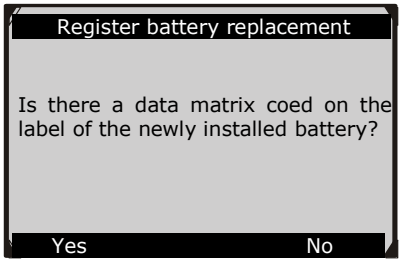


Figure 6.19

✓ Enter the data matrix code on the battery label.

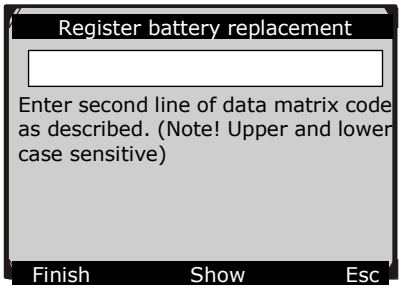


Figure 6.20

The three keys at the bottom of the screen work as below:

[**Finish**]: After entering the value, use this key to save the value to the tool.

[**Show**]: Press this key to pop up a soft keyboard to facilitate your input.

[**Esc**]: Press this key to exit.

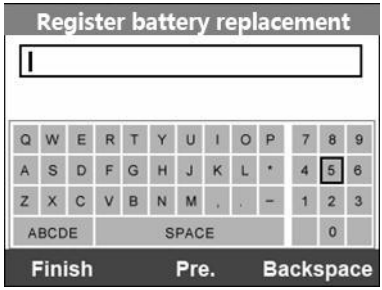


Figure 6.21

The three keys at the bottom of the screen work as below:

[**Finish**]: When you finished the input, select this key to confirm your input.

[**Pre.**]: Uses this button to move a space to the left.

[**Backspace**]: Uses this key to erase the previous digit or character when typing.

✓ Press the corresponding button [**Yes**] to save the data and continue.

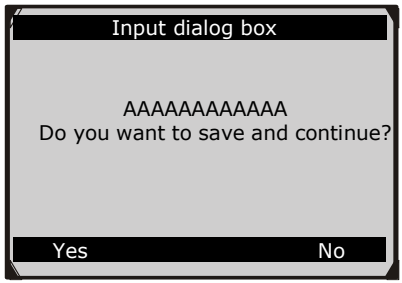


Figure 6.22

✓ The screen displays as below when the battery replacement has been successfully registered in engine electronics (DME/DDE).

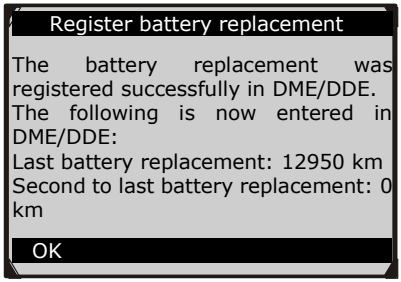


Figure 6.23

✓ Press the **OK** button to end the service function.

■ If the replaced battery has a different capacity from the original one, select **[2]** with the **LEFT/RIGHT** scroll button and press the **OK** button to continue.

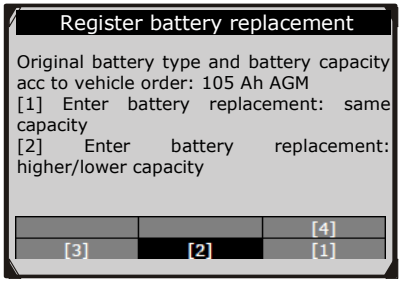


Figure 6.24

■ Read carefully the information on the screen and press the **OK** button to continue.

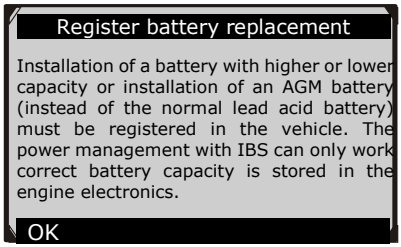


Figure 6.25

- Press the corresponding **FUNCTION** button [**Yes**] if the newly installed battery is an original BMW component.

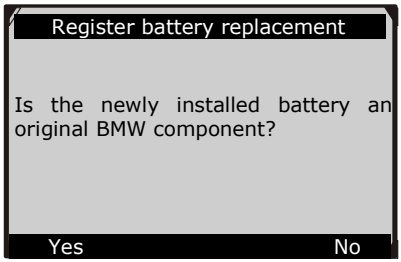


Figure 6.26

- Read carefully the information with the **UP/DOWN** scroll button and press the **OK** button to continue.

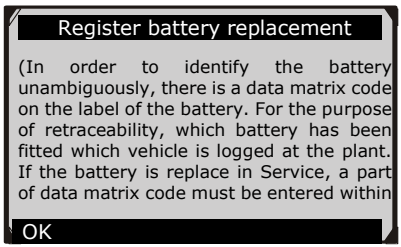


Figure 6.27

- Press the corresponding **FUNCTION** button [**No**] if the newly installed battery has no data matrix code.

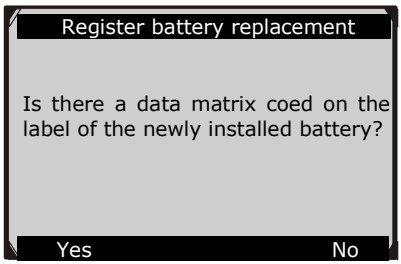


Figure 6.28

- Enter the supplier number and terminal stamp at the negative terminal according to instructions displayed on the screen and save the entered values to continue.

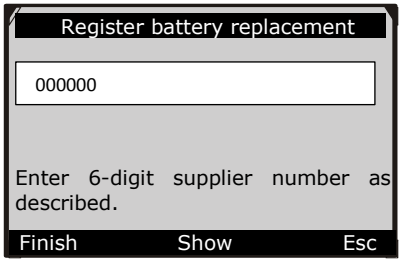


Figure 6.29

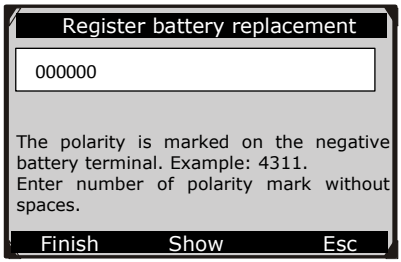


Figure 6.30

- The screen will display as below, which means the replaced battery is being entered in the DDE/DME.

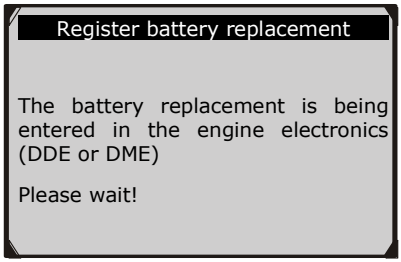


Figure 6.31

- When the replaced battery has been successfully registered in the

engine electronics, press the **OK** button to end the service function.

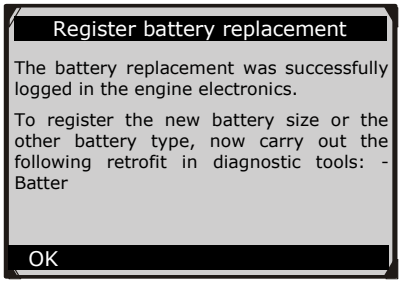


Figure 6.32

- If the replaced battery has a different type from the original one, select **[3]** with the **LEFT/RIGHT** scroll button and press the **OK** button to continue.

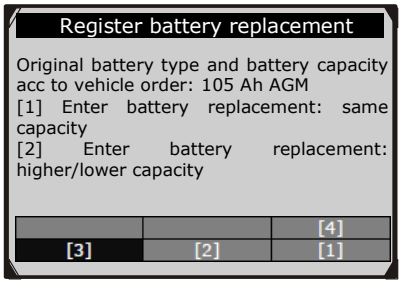


Figure 6.33

- Refer to the steps described for registering the replaced battery with higher/lower capacity.

***NOTE**: Please follow the instructions shown on screen to proceed when performing the registration procedure.*

6.3 Close-circuit Current

The close-circuit current should always be measured if increased current consumption is suspected. Battery will discharge at a relatively fast rate even current consumption rates slightly above the normal.

Close-circuit Current Monitoring Evaluation

1) Use the **UP/DOWN** scroll button to select **Close-circuit current** option from the **Power supply (Battery)** menu and press the **OK** button.

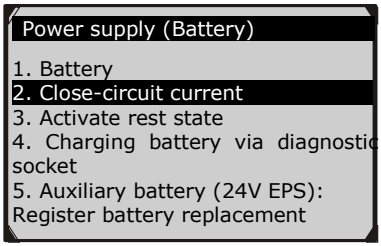


Figure 6.34

2) Select **Evaluate close-circuit current monitoring** option and press the **OK** button to display the last 24 close-circuit current values.

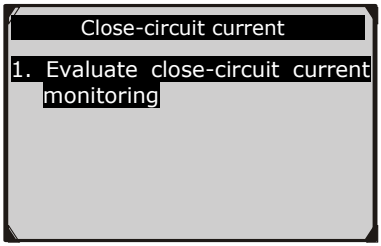


Figure 6.35

3) Use the **UP/DOWN** scroll button to read the complete information and press the **OK** button to end service function.

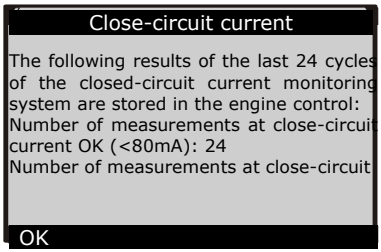


Figure 6.36

6.4 Activate Rest State

Power Down Command

This function can be used to place electronic control units in sleep mode within a short time.

1) Use the **UP/DOWN** scroll button to select **Activate rest state** option from the **Power supply (Battery)** menu and press the **OK** button.

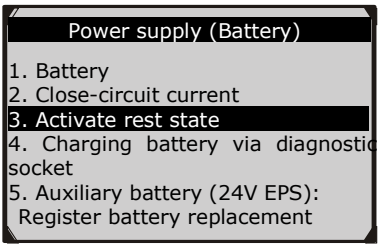


Figure 6.37

2) Select the **Power down command** option and press the **OK** button.

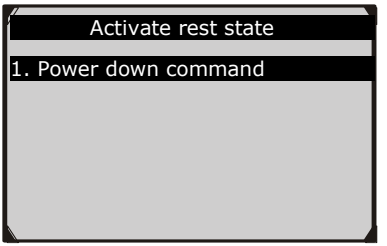


Figure 6.38

3) Use the **UP/DOWN** scroll button to read the complete information.

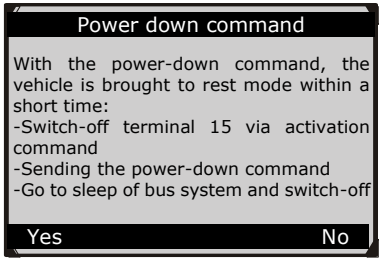


Figure 6.39

4) Press the corresponding **FUNCTION** button [**Yes**] to send the power-down command, or press the corresponding **FUNCTION** button [**No**] to exit this function.

5) After the command is sent, follow the instructions on the screen and press the **OK** button to continue.

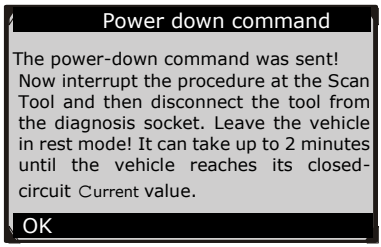


Figure 6.40

6) Press the **OK** button to end the service function.

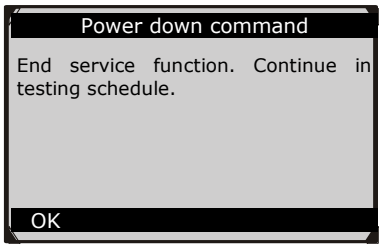


Figure 6.41

6.5 Charging Battery via Diagnostic Socket

This function can delete the transport mode of the control unit and allows the battery charging via the OBD II port.

1) Use the **UP/DOWN** scroll button to select **Charging the battery via diagnostic socket** option from the **Power supply (Battery)** menu and press the **OK** button.

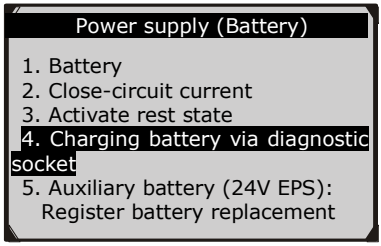


Figure 6.42

2) Read carefully the instructions on the screen and press the **OK** button to continue.

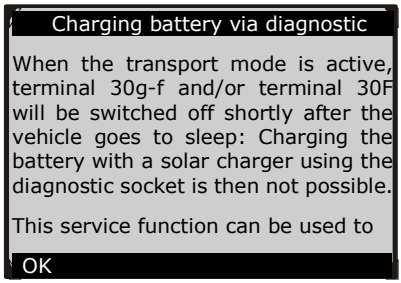


Figure 6.43

3) Press the corresponding **FUNCTION** button **[1]** and press the **OK** button to delete the transport mode of the control unit.

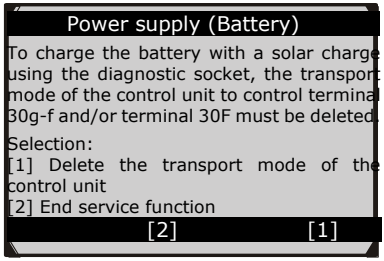


Figure 6.44

4) After deleting the transport mode, the screen will displays as below. Press the **OK** button to end service function.

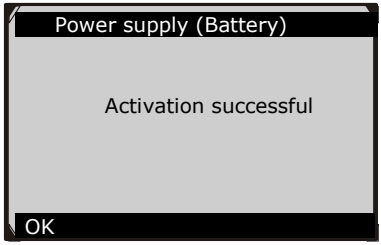


Figure 6.45

6.6 Auxiliary Battery

This function can display the 24V EPS auxiliary battery history and register the auxiliary battery replacement.

1) Use the UP/DOWN scroll button to select Auxiliary battery (24V EPS): Register battery replacement option from the Power supply (Battery) menu and press the OK button.

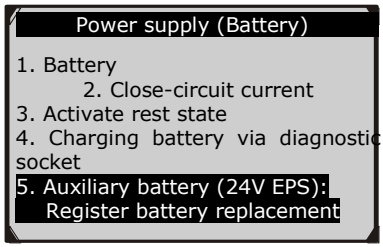


Figure 6.46

2) Read the instructions on the screen with the **UP/DOWN** scroll button.

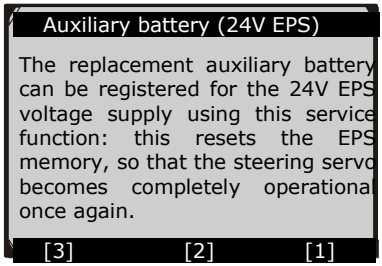


Figure 6.47

To display the battery history:

1) Press the corresponding **FUNCTION** button **[1]** to display the history of the last auxiliary battery replacement.

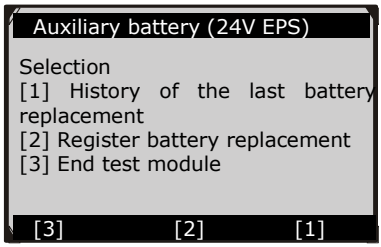


Figure 6.48

2) The screen will display the history information of the auxiliary battery. Press the **OK** button to end service function.

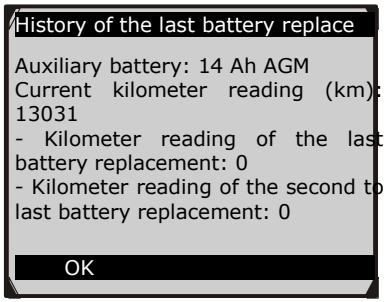


Figure 6.49

To register the battery replacement:

1) Press the corresponding **FUNCTION** button **[2]** to register the auxiliary battery replacement.

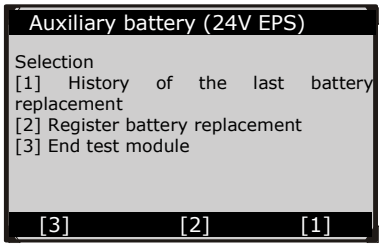


Figure 6.50

2) Read carefully the Help information on the screen and press the **OK** button to continue.

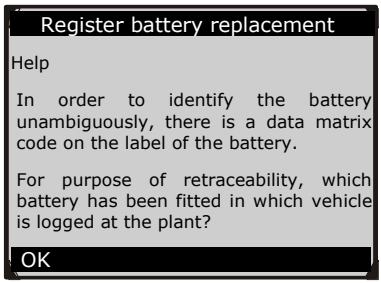


Figure 6.51

3) Press the corresponding **FUNCTION** button [**Yes]** if the newly installed battery is an original BMW component:

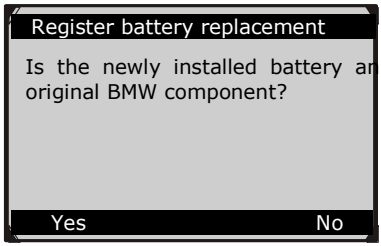


Figure 6.52

4) Press the corresponding **FUNCTION** button [**Yes**] if there is a data matrix code on the label of the newly installed battery.

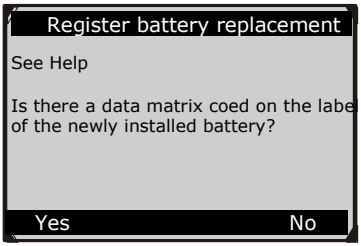


Figure 6.53

5) Enter the data matrix code as described and save.

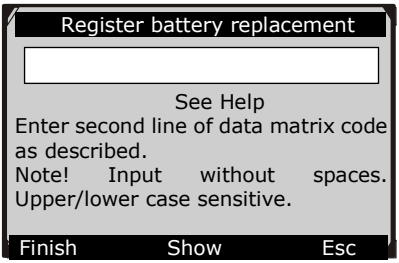


Figure 6.54

The three keys at the bottom of the screen work as below.

[Finish]: After entering the value, use this key to save the value to the tool.

[Show]: Press this key to pop up a soft keyboard to facilitate your input.

[Esc]: Press this key to exit.

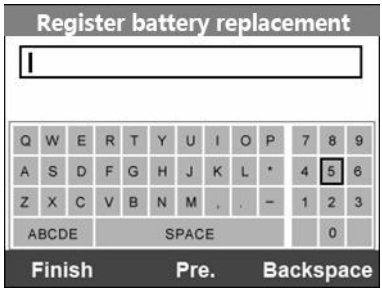


Figure 6.55

The three keyboard function keys work as below.

[Finish]: When you finished the input, select this key to confirm your input and exit.

[Pre.]: Uses this key to Move a space to the left.

[Backspace]: Uses this key to erase the previous digit or character when typing.

6) After you have finished the input, press the corresponding **Function** button [**Finish]** and if the information on the screen is correct, press the corresponding **Function** button **[Yes]** to continue.

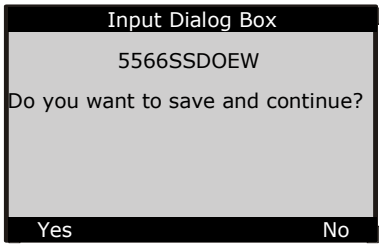


Figure 6.56

7) The tool will begin the registration of the battery replacement.

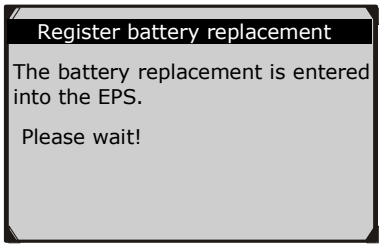


Figure 6.57

8) When the auxiliary battery replacement has been registered successfully in the EPS, the screen will display as below:

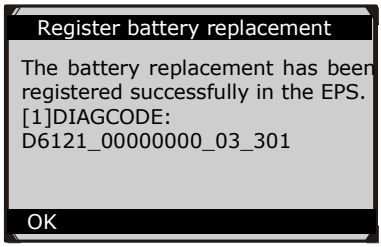


Figure 6.58

9) Press the **OK** button to end the service function.

- ***NOTE**: If the registration is failed, press the OK button and try again.*

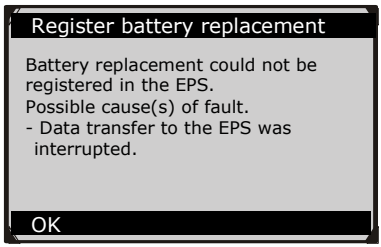


Figure 6.59

7. Oil Reset

7.1 General Information

The Engine Oil Life System calculates when to change the engine oil and filter based on vehicle use. An oil change is required whenever indicated by the display and according to the recommended maintenance schedule. Whenever the oil is changed, reset the system so it can calculate when the next oil change is required. If a situation occurs where the oil is changed prior to a service indicator being turned on, also reset the system.

***IMPORTANT**: Always reset the engine oil life to 100% after every oil change.*

***NOTE**: All required work must be carried out before the service indicators are reset. Failure to do so may result in incorrect service values and cause DTCs to be stored by the relevant control module.*

***NOTE**: For some vehicles, the scan tool can perform added functionality to reset additional service lights (maintenance cycle, service interval). Take BMW as an example, its service reset function includes engine oil, spark plugs, front/rear brakes, coolant, particle filter, brake fluid, microfilter, vehicle inspection, exhaust emission inspection and vehicle check.*

All software screens shown in this manual are examples, actual test screens may vary for each vehicle being tested. Observe the menu titles and onscreen instructions to make correct option selections.

7.2 Reset Operation

1. Turn the ignition on but do not start the engine.
2. Turn on the scan tool and wait for the **Main Screen** to appear.
3. Select **Oil Reset** icon in the **Main Screen** (*Figure 3.1*) and wait for the vehicle manufacturer screen. Choose the correct vehicle make.

There are two ways to perform the reset service.

Manual Reset

Almost all Asian vehicles and most American and European vehicles can be reset manually by technicians.

- ***NOTE**: In this manner, the scan tool will not communicate with the vehicle being tested.*

To finish this procedure, please follow these steps (Take Ford as an example):

1) From the vehicle make screen, select Ford and press the **OK** button.

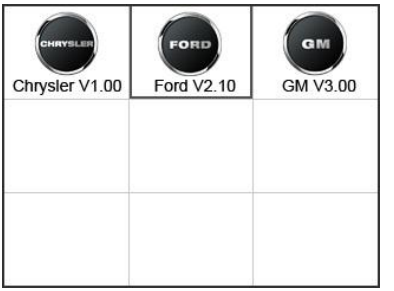


Figure 7.1

2) Step by step, select the right options for your vehicle according to each screen that appears.

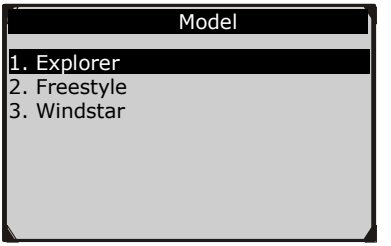


Figure 7.2

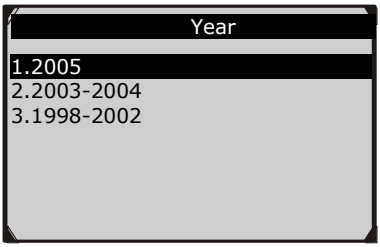


Figure 7.3

3) After entering the vehicle information, the scan tool displays manual reset message as below.

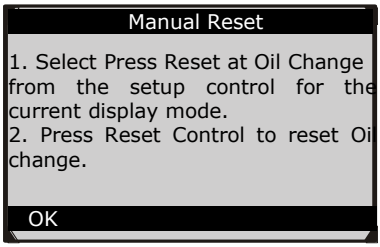


Figure 7.4

4) Follow the instructions to reset the service manually.

5) Press **ESC** button to exit.

Auto Reset

Most American and European vehicles can be reset automatically by the scan tool.

- ***NOTE**: In this manner, the scan tool will communicate with the vehicle being tested. If there is a linking error, please refer to **3.8 product troubleshooting**.*

To finish this procedure, please follow these steps (Take **Peugeot** as an example):

1) From the vehicle make screen, select **Peugeot** and press the **OK** button.



Figure 7.5

2) Step by step, select the right options for your vehicle according to each screen that appears.

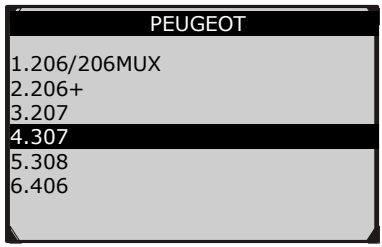


Figure 7.6

3) After you have entered the vehicle information, the oil reset screen will display as below.

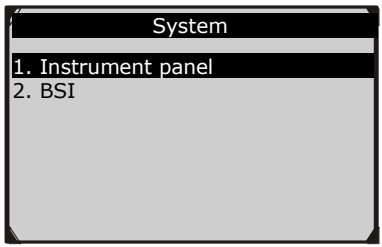


Figure 7.7

4) The **Instrument Panel** option enables you to finish oil reset service in one step by resetting the ECU to default values automatically. The procedures work as below.

- In the **Oil Reset** menu, select **Service Zero Reset** function and press the **OK** button.

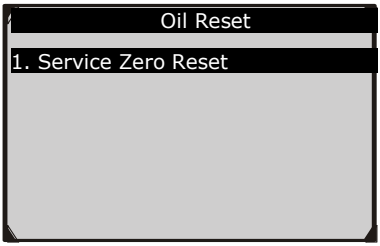


Figure 7.8

- The tool will automatically begin resetting the vehicle ECU to default values.

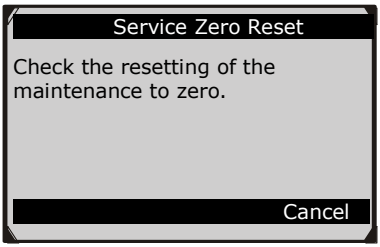


Figure 7.9

- When the resetting is finished, the tool will display a confirmation message.

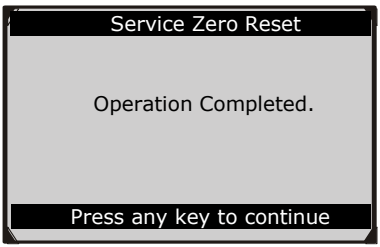


Figure 7.10

5) The **BSI** option enables you to finish oil reset service automatically and manually. The procedures work as below.

- In the Oil Reset menu, select Resetting to zero of the service mileage function and press OK button.

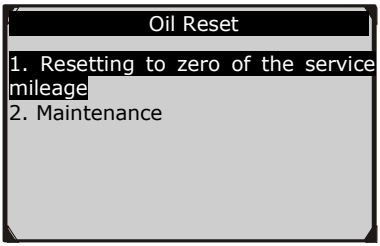


Figure 7.11

- The tool will reset the oil service to zero automatically.

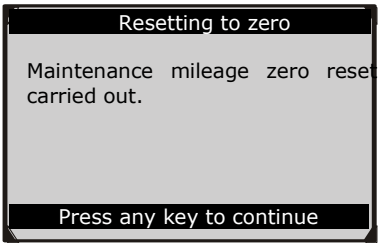


Figure 7.12

- In the **Oil Reset** menu (*Figure 7.11*), select **Maintenance** function and press **OK** button. The screen will display the preset maintenance information of the vehicle. The information items vary with different vehicles.

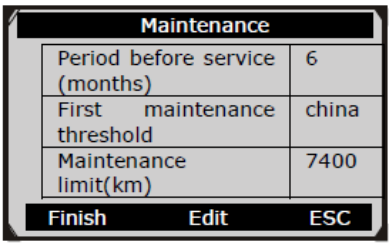


Figure 7.13

✓ For the **First maintenance threshold**, you have two choices. Select the correct option and press **OK** button to save the change.

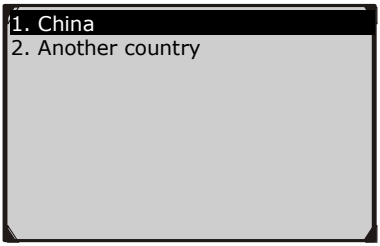


Figure 7.14

✓ For the **Period before service** or **Maintenance limit**, press **Edit** key on the bottom to pop up a soft keyboard to facilitate your input.

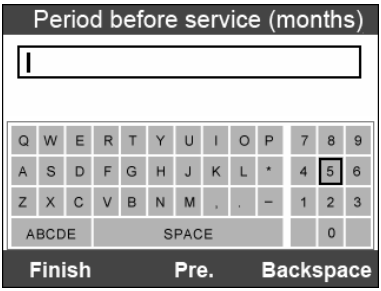


Figure 7.15

The three keyboard function keys work as below.

[Finish]: When you finished the input, select this key to confirm your input and exit.

[Pre.]: Moves a space to the left.

[Backspace]: Uses this key to erase the previous digit or character when typing.

NOTE: The data you input must be in the reasonable range, which is defined by the preset values in ECU. If you enter a data out of range, the tool will display a warning message.

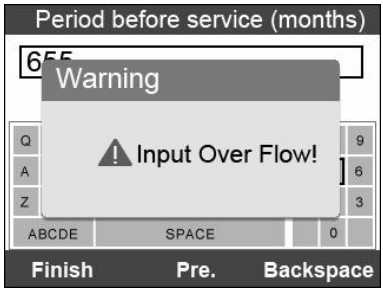


Figure 7.16

✓ When you have finished your configuration, select **Finish** key on the bottom of the screen, then the tool will begin the oil reset service.

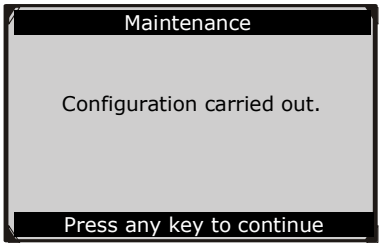


Figure 7.17

8. EPB

This electric parking brake (EPB) function has a multitude of uses to maintain the electronic braking systems safely and effectively. The applications include deactivating/activating the brake control system, assisting with brake fluid control, brake diagnostics, opening and closing brake pads, setting brakes after disc or pad replacement and also reading and clearing EPB/SBC trouble codes. It is also capable of retrieving Fault Codes information from the ECU.

8.1 EPB Safety

It may be dangerous to perform electric parking brake (EPB) system maintenance, so before you begin the service work, please keep these rules in mind.

- Ensure that you are fully familiar with the braking system and its operation before commencing any work.
- The EPB control system may be required to be deactivated before carrying out any maintenance/diagnostic work on the brake system. This can be done from the tool menu.
- Only carry out maintenance work when the vehicle is stationary and on level ground.
- Ensure that the EPB control system is reactivated after the maintenance work has been completed.

***NOTE**: Autel accepts no responsibility for any accident or injury arising from the maintenance of the Electric Parking Brake system.*

8.2 EPB Maintenance

1) Turn the ignition off.
2) Release the park brake and make sure the car is properly blocked.
3) Connect the tool to vehicle and power on.
4) Turn the ignition on.

5) Select **EPB** icon in the **Main Screen** (*Figure 3.1*) and wait for the vehicle manufacturer screen. Choose the correct vehicle make (Take **Peugeot** as an example).



Figure 8.1

6) After you have selected the vehicle make, the electric parking brake system screen will display as below.

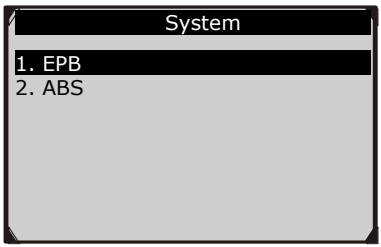


Figure 8.2

7) In the electric parking brake system screen, use the **UP/DOWN** button to select **EPB** to enter EPB system. In the EPB diagnostic function, the tool can read codes, erase codes, record live data, read ECU information, perform active test, and perform special function. For the functions already being described before, please refer to chapter ***5. OBD II Diagnostics*** for details.

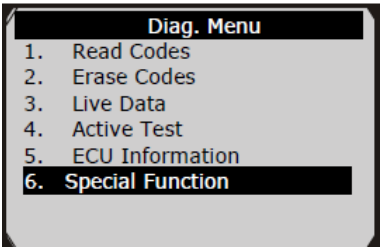


Figure 8.3

Special Function

1) In the **Diagnostic Menu** (Figure 8.3), use the **UP/DOWN** button to select **Special Function** to do the EPB test, which includes **Brake cable replacement** and **Electric parking brake replacement.**

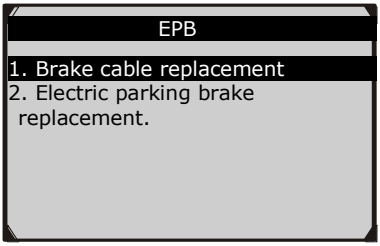


Figure 8.4

2) In the **EPB** screen, use the **UP/DOWN** button to select **Brake cable replacement.** The screen shows as below.

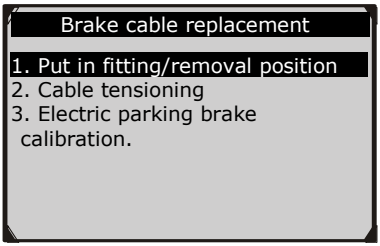


Figure 8.5

In the **Brake cable replacement** screen, the tool can perform three functions.

Put in Fitting or Removal Position

This function enables you to fit in or remove the brake cable safely and easily. It will take a few seconds to execute this command.

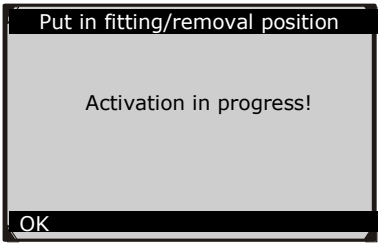


Figure 8.6

When the job is done successfully, the tool will display a message to confirm.

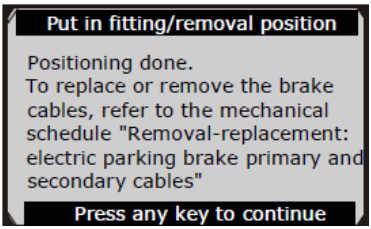


Figure 8.7

If the job fails to finish, the tool will display a message to remind user of a problem. After you exit the diagnosis program, please repair the problem immediately.

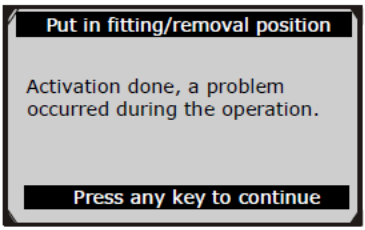


Figure 8.8

Cable Tensioning

Once the brake cable is fit in, you would use this function to adjust its tension. It will take a few seconds to execute this command.

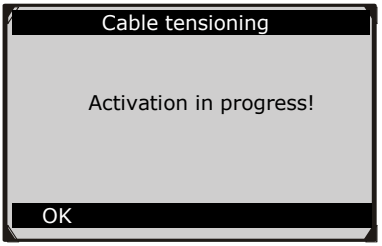


Figure 8.9

When the job is done successfully, the tool will display a message to confirm.

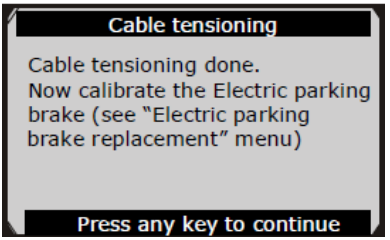


Figure 8.10

If the job fails to finish, the tool will display a message to remind user of a problem. After you exit the diagnosis program, please repair the problem immediately.

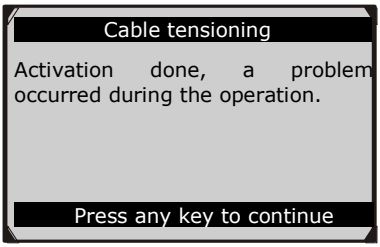


Figure 8.11

Electric Parking Brake Calibration

When both functions above have completed successfully, you still need to calibrate the electric parking brake system.

This function is to check if the EPB is working correctly, which should be performed after work has been completed on the EPB or vehicle braking system. It will remove any air gap from the brake pads and check the EPB pressure.

After you select this function, the tool will automatically work in the following procedure.

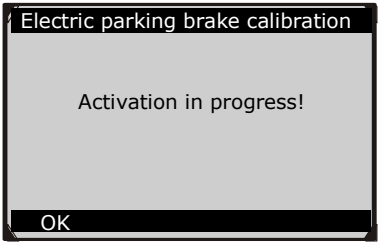


Figure 8.12

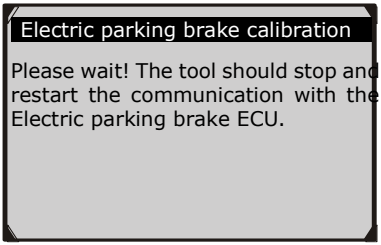


Figure 8.13

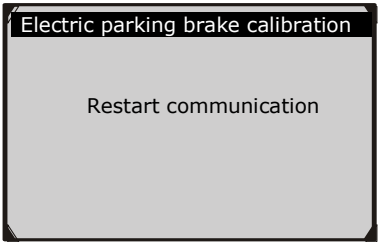


Figure 8.14

When the job is done successfully, the tool will display a message to confirm.

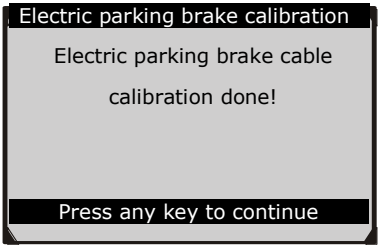


Figure 8.15

If the job fails to finish, the tool will display a message to remind user of a problem. After you exit the diagnosis program, please repair the problem immediately.

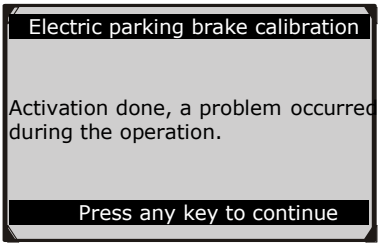


Figure 8.16

3) In the **EPB** screen, use the **UP/DOWN** button to select **Electric parking brake replacement.** The screen shows as below.

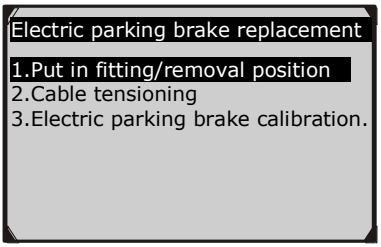


Figure 8.17

In the **Electric parking brake replacement** screen, the tool can also perform three functions, which details could refer to the same functions described in the **Brake cable replacement** menu above.

Active Test

During an active test, the tool is used for outputting commands to the ECU in order to drive the actuators. This test determines the integrity of the system or parts by monitoring the operation of the actuators or by reading the EPB ECU data.

To carry out an active test, please follow these steps.

1. Follow the instructions above to display the **Diag. menu** screen (*Figure 8.3*).
2. Select **Active Test** and a list of possible tests appear. The test items in the list vary with different vehicles.

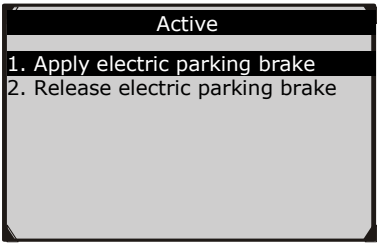


Figure 8.18

3. Select a test and the tool will display an information screen as "**The 'apply electric parking brake' operation is used to test**

the operation of the brake cables statically. If you start the actuator test, you must wait for the component to stop operating before starting another actuator test. Press 'OK' to apply the electric parking brake or press 'Cancel' to go back to the list of possible operation." Select **OK** to continue or **Cancel** to exit.

4. The tool may display information during and after the test. The information varies by vehicle.

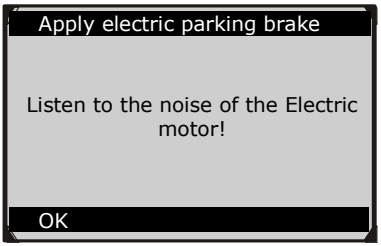


Figure 8.19

5. When the test is finished, there may be three results displaying on the screen.
   - The test is finished successfully.
   - The test is stopped by the user.
   - The test did not finish.

In the first condition, the tool will display an information screen as "**The operation was performed correctly. Put the vehicle on a vehicle lift and check that the rear wheels are locked. Check that the 'Electric parking brake on' message is display on the control panel and that the LED illuminates on the control panel**."

In the second condition, the tool will display an information screen as "**Operation of the actuator test was stopped by the user. Press 'Cancel' to go back to the list of possible operations.**"

In the third condition, the tool will display an information screen as "**The actuator test did not finish operating. Please perform the following check: Read the faults to resolve any possible faults**

relating to the electric motor or to the cables."

IMPORTANT: *Make sure that the components to be tested are not physically damaged and are well assembled.*

WARNING*: Please stop repairing the components to be tested before the test starts and keep a certain distance during the test.*

8.3 ABS Maintenance

In the **System** menu (*Figure 8.2*), use **UP/DOWN** button to select **ABS** to do ABS maintenance. The scan tool displays as below:

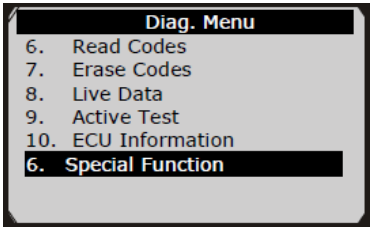


Figure 8.20

In the ABS diagnostic function, the tool can read codes, erase codes, record live data, read ECU information, perform active test, and perform special function. For the functions already being described before, please refer to chapter ***5. OBD II Diagnostics*** for details.

Special Function

1) In the **Diagnostic Menu** (Figure 8.20), use the **UP/DOWN** button to select **Special Function** to do the ABS test**.** The scan tool displays as below.

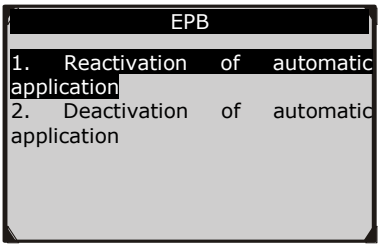


Figure 8.21

2) In the **EPB** menu, select the desired function and press the **OK** button. If the operation is finished successfully, the scan tool will display a confirmation message. Otherwise, it will display a message to remind user of a problem. After you exit the diagnosis program, please repair the problem immediately.

Active Test

1) In the **Diagnostic Menu** (*Figure 8.20*), use the **UP/DOWN** button to select **Active Test** to do the actuator test**.** The scan tool displays as below.

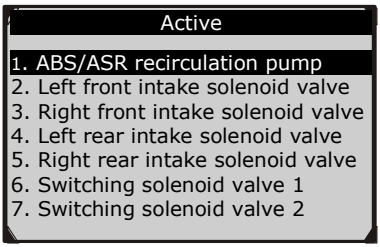


Figure 8.22

2) In the Active menu, use the **UP/DOWN** button to select the desired actuator to begin test. If the selected actuator works correctly, the tool will display a confirmation message as below (Figure 8.23). Otherwise, it will display a message to remind user of a problem. After you exit the diagnosis program, please repair the problem immediately.

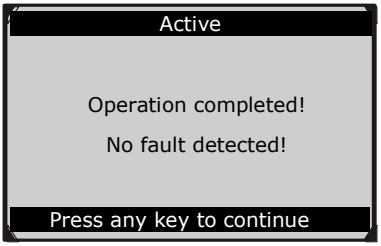

Active
Operation completed!
No fault detected!
Press any key to continue

Figure 8.23

9. ABS/SRS

The **ABS/SRS** diagnostic function is used to retrieve and clear DTCs, display and save data streams or module information, and perform various function tests on the vehicle's ABS/SRS systems. It also provides the definition of each trouble code to help diagnose problem areas within the system that have caused the Malfunction Indicator Light to turn on.

- ***NOTE**: AUTEL accepts no responsibility for any accident or injury arising from servicing the ABS/SRS systems. When interpreting DTCs retrieved from the vehicle, always follow the manufacturer's recommendation for repair.*
- ***NOTE**: All software screens shown in this manual are examples, actual test screens may vary for each vehicle being tested. Observe the menu titles and onscreen instructions to make correct option selections.*

Please follow these steps to start the ABS/SRS diagnostic testing procedure:

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 but do not start the engine.
5) Turn on the scan tool and wait for the **Main Screen** to appear.
6) Use the **UP/DOWN** scroll button and **LEFT/RIGHT** scroll button to select **AbsSrs** in the **Main Screen** (*Figure 3.1*).

9.1 Vehicle Selection

There are three ways for users to enter the vehicle information in the scan tool.

Select Vehicle Step by Step

In this mode, the scan tool will communicate with the vehicle and a series of vehicle identification screens appears for user to identify the vehicle (These may include vehicle Model, Year, Type and Vehicle Part etc. for selection).

On each screen that appears, use the **UP/DOWN** scroll button to select the correct option and then press the **OK** button. Do this until the vehicle is completely identified (Take **Fiat** as an example).

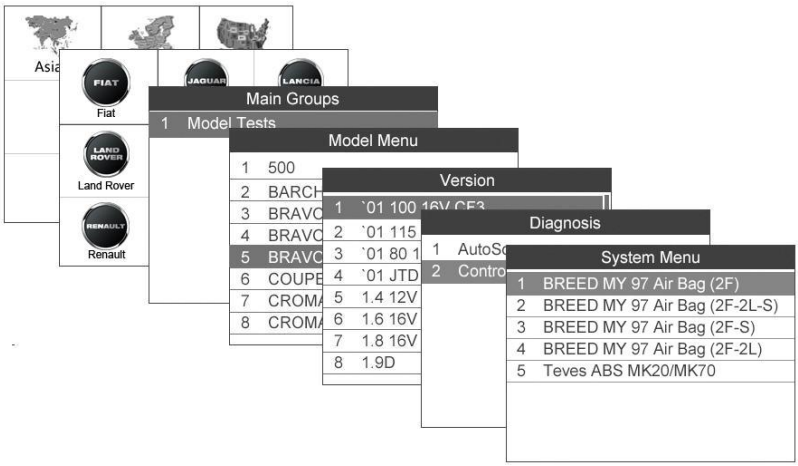


Figure 9.1

- For some vehicles, the vehicle identification procedure will ask you to select a letter which indicates one character of VIN code (Take **Chevrolet** as an example).

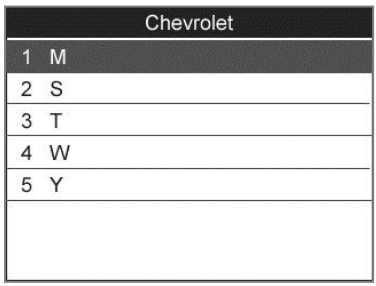


Figure 9.2

- For some vehicles, the ABS and SRS systems are divided into two systems. SRS is located in Body system, while ABS is located in Chassis system. In this case, you will need to select the correct system to run the desired diagnostics.

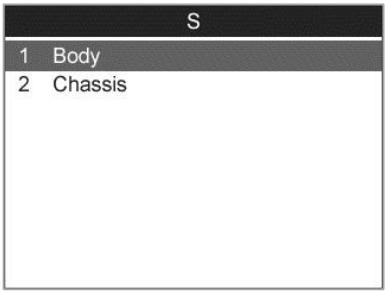


Figure 9.3

Manual Vehicle Entry

This mode allows users to input and save specific vehicle information (i.e. PCM Part Number, Vehicle Calibration Number Tear Tag, and VIN) manually. This function enables direct access to the vehicle's ABS system and makes the diagnostic testing more convenient, saving time doing step-by-step entry selections (Take **Ford** as an example).

1) Select the **Ford** logo from the car make screen.

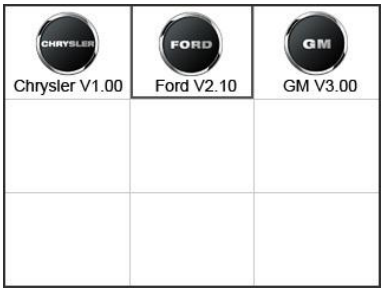


Figure 9.4

2) Use the **UP/DOWN** scroll button to select the **Manual Vehicle Entry** option from the **DAS** menu.

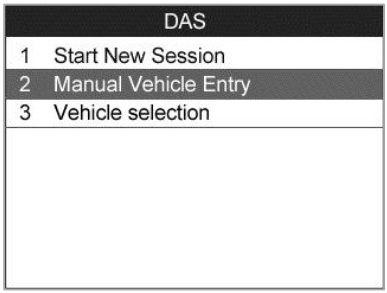


Figure 9.5

3) To enable the scan tool to identify the vehicle specifications, select one of the three entries in the option screen - **PCM Part Number, Calibration Number** or **Tear Tag** - to fill up the vehicle information.

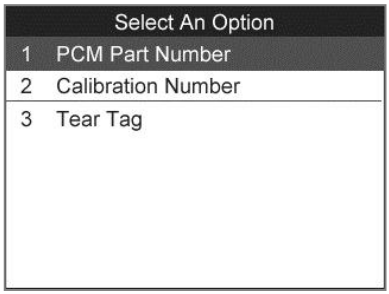


Figure 9.6

4) Take the **PCM Part Number** entry for example, you will need to fill up the accurate vehicle information in the input entry.

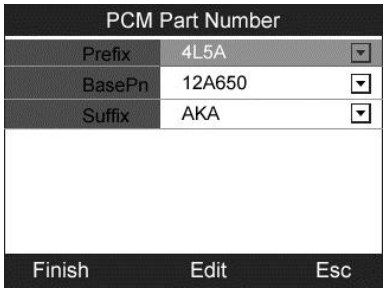


Figure 9.7

The three keys at the bottom of the screen work as below.

[Finish]: After entering a new value, use this key to save the value to the tool.

[Edit]: Press this key to pop up a soft keyboard to facilitate your input (Figure 9.8).

[Esc]: Press this key to exit.

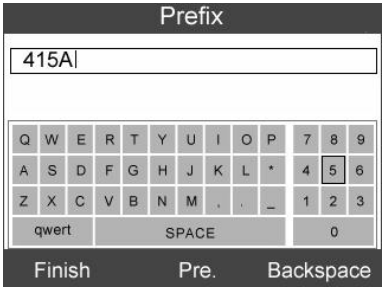


Figure 9.8

The three keys at the bottom of the screen work as below.

[Finish]: When you finished the input, select this key to confirm your input and exit.

[Pre.]: Moves a space to the left.

[Backspace]: Uses this key to erase the previous digit or character when typing.

- ***NOTE**: The data you input must be in the reasonable range. If the input data is out of range, the tool will display a warning message "Input over flow!"*

5) A screen message with the vehicle information will come up, asking for your confirmation. If the information is correct select **Yes** to continue, otherwise select **No** to return to previous screen.

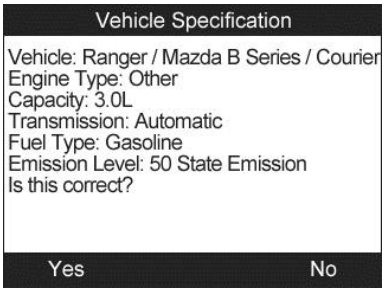


Figure 9.9

Auto Vehicle Entry

Some vehicles provide an auto scan feature, which allows users to skip time-wasting step-by-step vehicle identification procedure and retrieve the specific vehicle information from vehicle computer directly.

NOTE: This function may not be available for all vehicles.

Take **Ford** as an example.

1) Select the **Ford** logo from the vehicle make screen.

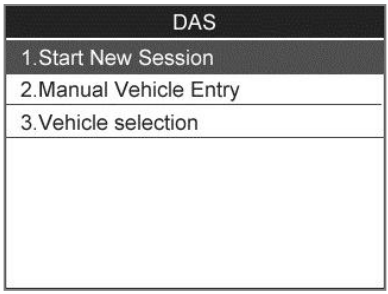


Figure 9.10

2) Use the **UP/DOWN** scroll button to select the **Start New Session** from the **DAS** menu.

3) A screen message with the vehicle information will come up, asking for your confirmation. If the information is correct select **Yes** to continue, otherwise select **No** to return to previous screen.

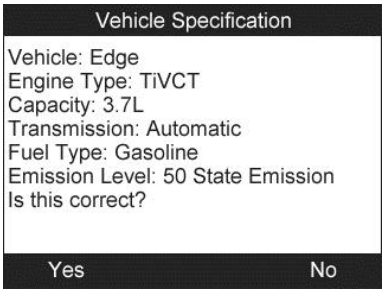


Figure 9.11

After the vehicle information is entered correctly, you will need to select SRS and ABS systems as below.

9.2 ABS Diagnostics

After the vehicle information is entered correctly, select ABS system to perform ABS diagnostics. Take **GM** as an example.

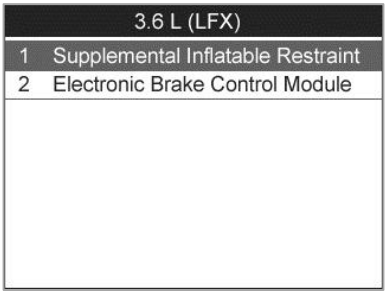


Figure 9.12

From the ABS and SRS menu use the **UP/DOWN** scroll button to select **Electronic Brake Control Module** and press the **OK** button. The screen displays as below.

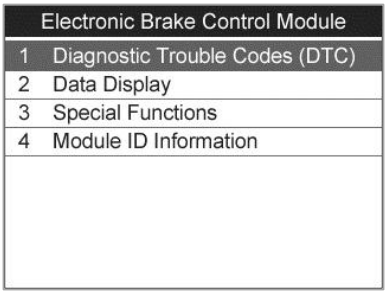


Figure 9.13

Read Codes

This function allows user to read the ABS DTCs from vehicle ECU.

1) From the diagnostic function menu (Figure 9.13) use the **UP/DOWN** scroll button to select **Diagnostic Trouble Codes** and press the **OK** button.

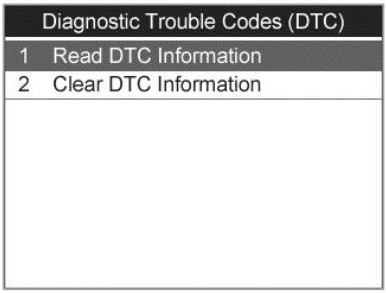


Figure 9.14

2) Use the **UP/DOWN** scroll button to select **Read DTC Information** and press the **OK** button (Figure 9.14).

3) View DTCs and their definitions on screen.

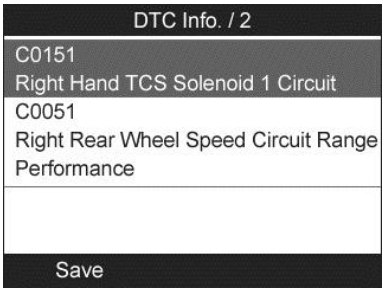


Figure 9.15

4) Select **Save** option to store the codes or press **ESC** button to exit without saving.

Erase Codes

This function allows user to erase the ABS DTCs in vehicle ECU.

- ***NOTE**: If you plan to take the vehicle to a Service Center for repair, DO NOT erase the ABS DTCs from the vehicle's computer. If the codes are erased, valuable information that might help the technician troubleshoot the problem will be erased.*

1) From the diagnostic function menu (*Figure 9.13*) use the **UP/DOWN** scroll button to select **Diagnostic Trouble Codes** and press the **OK** button.

2) Use the **UP/DOWN** scroll button to select **Clear DTC Information** and press the **OK** button (*Figure 9.14*).

3) A warning message will come up asking your confirmation.

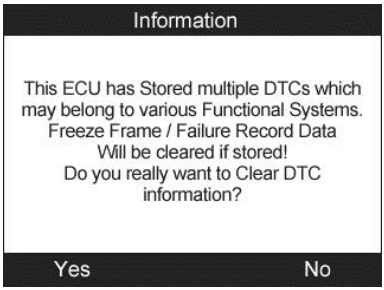


Figure 9.16

4) Select **Yes** to continue or **No** to exit. When the command is sent, the tool will display a message as below:

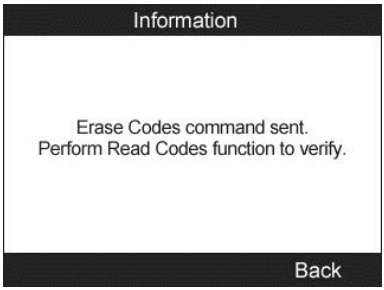


Figure 9.17

5) To make sure the codes are erased completely, perform **Read DTC Information** function to verify.

Data Display

This function enables you view ABS-related data readings from a selected ECU. With the live data screen displayed, you can view the data in Text or graphical format, record and save files for later viewing, pause the readings and view past data, and more.

1) From the diagnostic function menu (*Figure 9.13*) use the **UP/DOWN** scroll button to select **Data Display** and press the **OK** button.

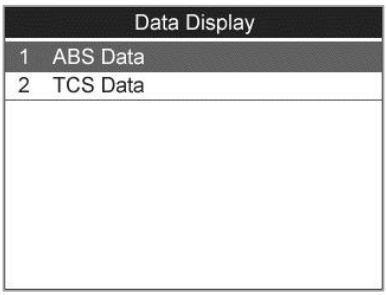


Figure 9.18

2) Use the **UP/DOWN** scroll button to select **ABS Data** or **TCS Data** and press the **OK** button to view the data streams.

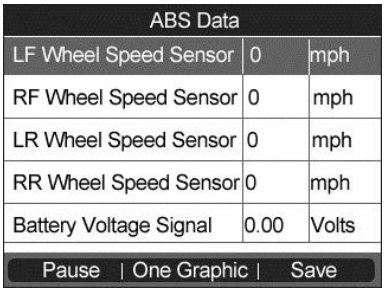


Figure 9.19

3) To view the live PIDs onscreen, use the **UP/DOWN** scroll button for all PIDs to display if additional information is available on more than one page.

The function keys at the bottom of the screen work as below.

- Press the corresponding **FUNCTION** button "**Save**" to store the retrieved live data for later playback or printing.
- Press the corresponding **FUNCTION** button "**Stop Save**" to stop saving data and resume live sensor data retrieving.
- Press the corresponding **FUNCTION** button "**Pause**" to suspend live sensor data retrieving.
- Press the corresponding **FUNCTION** button "**Continue**" to resume live sensor data retrieving.
- If the **One Graphic** option is highlighted when a specific item is selected, the graphic information is available. The PID name, current value, maximum and minimum values are displayed on the screen.
- When the data is shown in graph, the tool offers two more options: **Two Graphic** and **Merge Graph**. The first option can display two graphs on the same screen, and the last option can merge the two graphs into one.

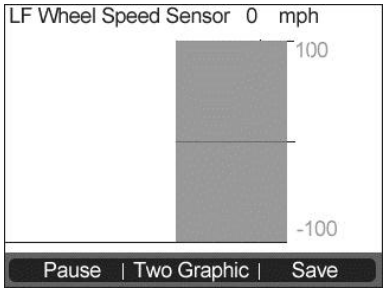


Figure 9.20

4) Press the **ESC** button to return to the previous menu.

Special Functions

This function allows users to do various active tests or module programming. The function options vary with the vehicles being tested.

1) From the diagnostic function menu (*Figure 9.13*) use the **UP/DOWN** scroll button to select **Special Functions** and press the **OK** button.

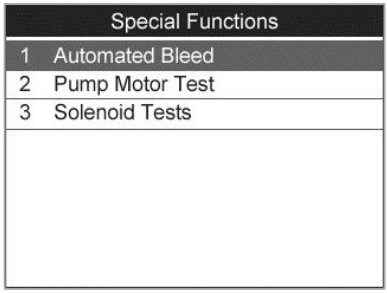


Figure 9.21

2) Use the **UP/DOWN** scroll button to select the desired function, and press the **OK** button (Take **Automated Bleed** as an example).

3) A series of message screens appears to instruct users on the whole procedure. Follow the on-screen instructions step by step to take the proper operation.

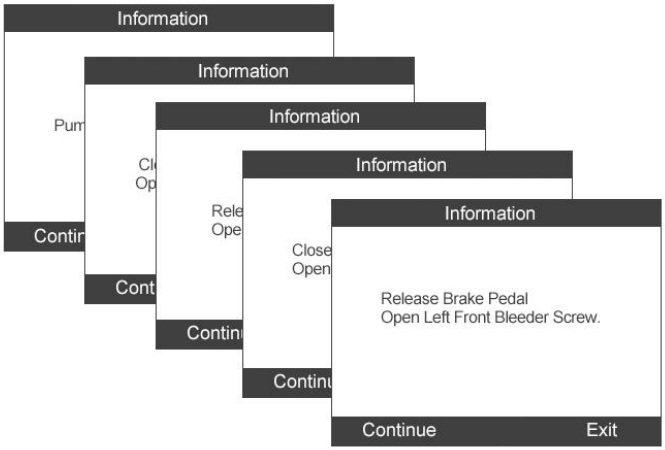


Figure 9.22

4) Take actions properly until the tool displays a completion message.

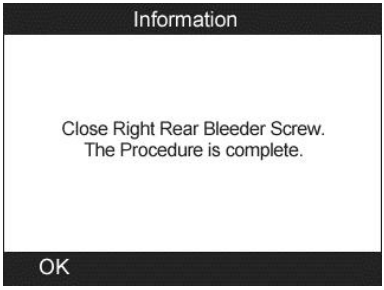


Figure 9.23

Module ID Information

This function allows users to view the selected control module information.

1) From the diagnostic function menu (*Figure 9.13*) use the **UP/DOWN** scroll button to select **Module ID Information** and press the **OK** button.

2) View module information present with its IDs and part numbers.

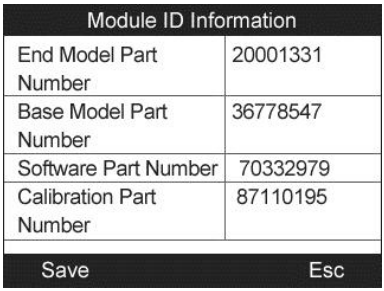


Figure 9.24

3) Select **Save** to store the module ID information or press the **ESC** button to exit without saving.

- If the vehicle does not support ABS communication, an advisory message shows on the screen. Press **ESC** button to return to the previous menu.

9.3 SRS Diagnostics

After the vehicle information is entered correctly, select SRS system to perform SRS diagnostics. Take **GM** as an example.

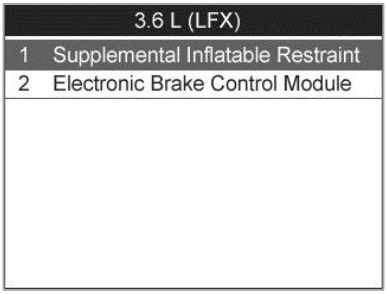


Figure 9.25

From the ABS and SRS menu use the **UP/DOWN** scroll button to select **Supplemental Inflatable Restraint** and press the **OK** button. The screen displays as below.

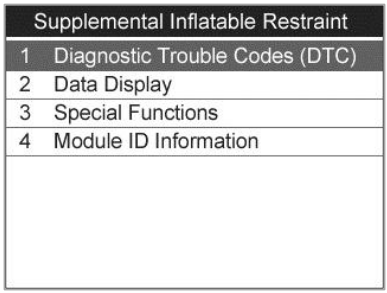


Figure 9.26

Read Codes

This function allows user to read the SRS DTCs from vehicle ECU.

1) From the diagnostic function menu (Figure 9.26) use the **UP/DOWN** scroll button to select **Diagnostic Trouble Codes (DTC)** and press the **OK** button.

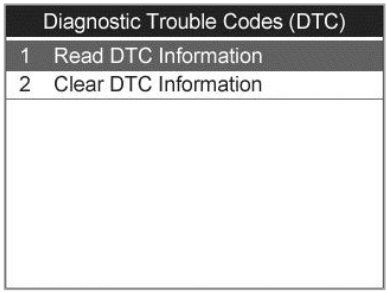


Figure 9.27

2) Use the **UP/DOWN** scroll button to select **Read DTC Information** and press the **OK** button (Figure 9.27).

3) View DTCs and their definitions on screen.

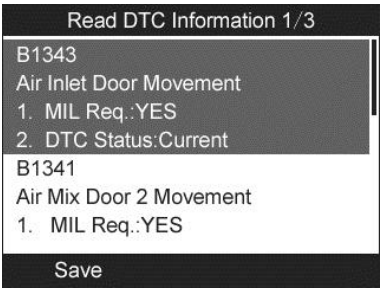


Figure 9.28

4) Select **Save** option to store the codes or press **ESC** button to exit without saving.

Erase Codes

This function allows user to erase the SRS DTCs in vehicle ECU.

- ***NOTE**: If you plan to take the vehicle to a Service Center for repair, DO NOT erase the SRS DTCs from the vehicle's computer. If the codes are erased, valuable information that might help the technician troubleshoot the problem will be erased.*

1) From the diagnostic function menu (*Figure 9.26*) use the **UP/DOWN** scroll button to select **Diagnostic Trouble Codes** and press the **OK** button.

2) Use the **UP/DOWN** scroll button to select **Clear DTC Information** and press the **OK** button (*Figure 9.27*).

3) A warning message will come up asking your confirmation.

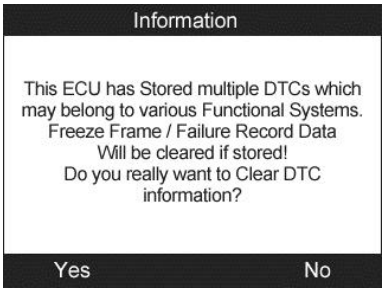


Figure 9.29

4) Select **Yes** to continue or **No** to exit. When the command is sent, the tool will display a message as below:

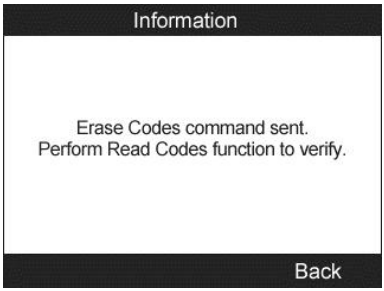


Figure 9.30

5) To make sure the codes are erased completely, perform **Read DTC Information** function to verify.

Data Display

This function enables users view SRS-related data readings from a selected ECU. With the live data screen displayed, you can view the data in Text or graphical format, record and save files for later viewing, pause the readings and view past data, and more.

1) From the diagnostic function menu (*Figure 9.26*) use the **UP/DOWN** scroll button to select **Data Display** and press the **OK** button.

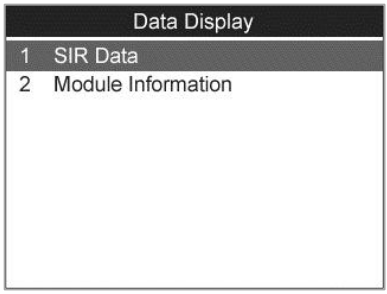


Figure 9.31

2) Use the **UP/DOWN** scroll button to select **SIR Data** and press the **OK** button to view the data streams.

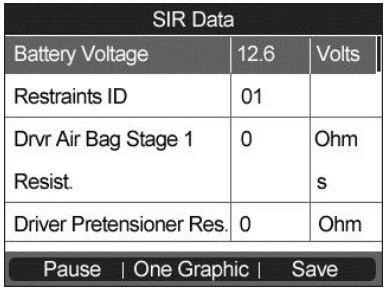


Figure 9.32

3) To view the live PIDs onscreen, use the **UP/DOWN** scroll button for all PIDs to display if additional information is available on more than one page.

The function keys at the bottom of the screen work as below.

- Press the corresponding **FUNCTION** button "**Save**" to store the retrieved live data for later playback or printing.
- Press the corresponding **FUNCTION** button "**Stop Save**" to stop saving data and resume live sensor data retrieving.
- Press the corresponding **FUNCTION** button "**Pause**" to suspend live sensor data retrieving.

- Press the corresponding **FUNCTION** button "**Continue**" to resume live sensor data retrieving.
- If the **One Graphic** option is highlighted when a specific item is selected, the graphic information is available. The PID name, current value, maximum and minimum values are displayed on the screen.
- When the data is shown in graph, the tool offers two more options: **Two Graphic** and **Merge Graph**. The first option can display two graphs on the same screen, and the last option can merge the two graphs into one.

4) Press the **ESC** button to return to the previous menu.

Special Functions

This function allows users to do various active tests or module programming. The function options vary with the vehicles being tested.

1) From the diagnostic function menu (*Figure 9.26*) use the **UP/DOWN** scroll button to select **Special Functions** and press the **OK** button.

2) The tool will display a list of available special functions for the vehicle being tested. Use the **UP/DOWN** scroll button to select the desired function, and press the **OK** button (Take **Chime Output** as an example).

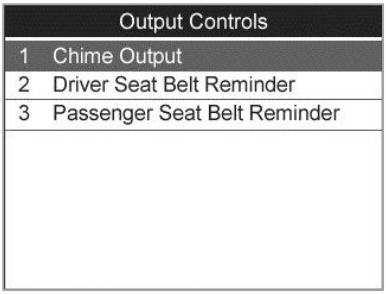


Figure 9.33

3) Press the corresponding **FUNCTION** button "**ON**" or "**OFF**" to

check whether the Chime on the vehicle is turning on or off.

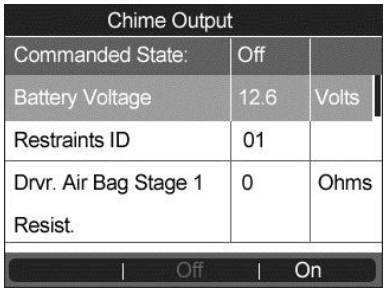


Figure 9.34

Module ID Information

This function allows users to view the selected control module information.

1) From the diagnostic function menu (*Figure 9.26*) use the **UP/DOWN** scroll button to select **Module ID Information** and press the **OK** button.

2) View module information present with its IDs and part numbers.

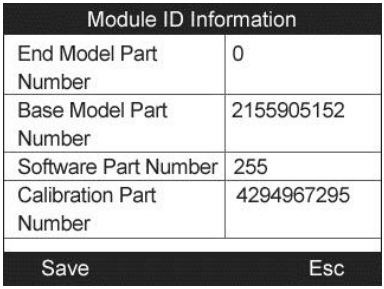


Figure 9.35

3) Select **Save** to store the module ID information or press the **ESC** button to exit without saving.

- If the vehicle does not support SRS communication, an advisory message shows on the screen. Press **ESC** button to return to the previous menu.

10. SAS (Steering Angle Sensor) Calibration

Steering Angle Sensor Calibration permanently stores the current steering wheel position as the straight-ahead position in the steering angle sensor EEPROM. Therefore, the front wheels and the steering wheel must be set exactly to the straight-ahead position before calibration. In addition, the vehicle identification number is also read from the instrument cluster and stored permanently in the steering angle sensor EEPROM. On successful completion of calibration, the steering angle sensor fault memory is automatically cleared.

Calibration must always be carried out after the following operations:

- Steering wheel replacement
- Steering angle sensor replacement
- Any maintenance that involves opening the connector hub from the steering angle sensor to the column
- Any maintenance or repair work on the steering linkage, steering gear or other related mechanism
- Wheel alignment or wheel track adjustment
- Accident repairs where damage to the steering angle sensor or assembly, or any part of the steering system may have occurred

- ***NOTE**: AUTEL accepts no responsibility for any accident or injury arising from servicing the SAS system. When interpreting DTCs retrieved from the vehicle, always follow the manufacturer's recommendation for repair.*
- ***NOTE**: All software screens shown in this manual are examples, actual test screens may vary for each vehicle being tested. Observe the menu titles and onscreen instructions to make correct option selections.*
- ***NOTE**: Before starting procedure, make sure vehicle has ESC. Look for button on dash.*

Take **Toyota** as an example.

While performing the Zero Point Calibration on Toyota vehicles, do not tilt, move or shake the vehicle. The vehicle must remain in a stationary condition throughout the entire process. Be sure to perform the procedure on a level surface with an inclination of less than 1%.

1. If the vehicle is equipped with an A/T, ensure that the shift lever is in the "P" range and the parking brake is applied. If the vehicle is equipped with an M/T, ensure that the parking brake is applied.
2. Turn the ignition off.
3. Locate the vehicle's 16-pin Data Link Connector (DLC).
4. Plug the scan tool cable connector into the vehicle's DLC.
5. Turn the ignition on but do not start the engine.
6. Turn on the scan tool and wait for the **Main Screen** to appear.
7. Use the **UP/DOWN** scroll button and **LEFT/RIGHT** scroll button to select **SAS** in the **Main Screen** (*Figure 3.1*).
8. Wait for a series of vehicle identification screens appears for user to identify the vehicle (*Figure 10.1*). On each screen that appears, use the **UP/DOWN** scroll button to select the correct option and then press the **OK** button. Do this until the vehicle is completely identified.

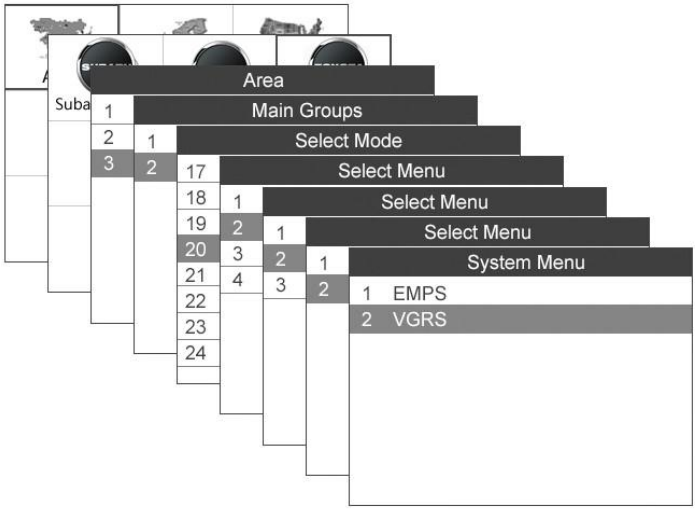


Figure 10.1

9. Use the **UP/DOWN** scroll button to select **VGRS** in the menu. The screen displays as below.

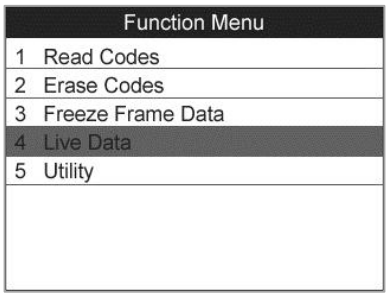


Figure 10.2

10.1 Read Codes

This function allows user to read the SAS DTCs from vehicle ECU.

1) From the function menu (Figure 10.2) use the **UP/DOWN** scroll button to select **Read Codes** and press the **OK** button.

2) View DTCs and their definitions on screen.

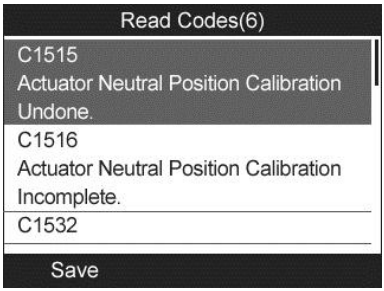


Figure 10.3

3) Select **Save** option to store the codes or press **ESC** button to exit without saving.

10.2 Erase Codes

This function allows user to erase the SAS DTCs in vehicle ECU.

1) From the function menu (*Figure 10.2*) use the **UP/DOWN** scroll button to select **Erase Codes** and press the **OK** button.

2) A warning message will come up asking your confirmation.

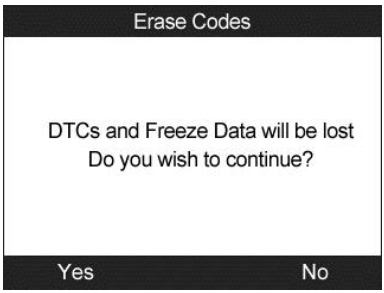


Figure 10.4

3) Select **Yes** to continue or **No** to exit. When the command is sent, the tool will display a message as below:

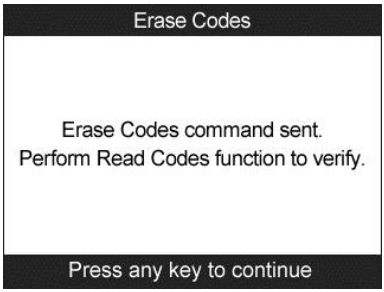


Figure 10.5

4) To make sure the codes are erased completely, perform **Read Codes** function to verify.

10.3 Freeze Frame Data

This function allows user to view the vehicle's operating parameters at the moment a DTC is detected.

1) From **Function Menu** (*Figure 10.2*) use the **UP/DOWN** scroll button to select **Freeze Frame Data** and press the **OK** button.

2) View the related operating parameters on screen.

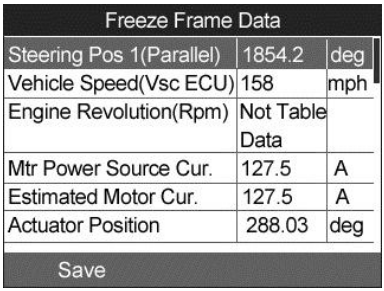


Figure 10.6

3) Select **Save** option to store the codes or press **ESC** button to exit without saving.

10.4 Live Data

This function enables users view SAS-related data readings from a selected ECU. With the live data screen displayed, you can view the data in Text or graphical format, record and save files for later viewing, pause the readings and view past data, and more.

From the function menu (*Figure 10.2*) use the **UP/DOWN** scroll button to select **Live Data** and press the **OK** button.

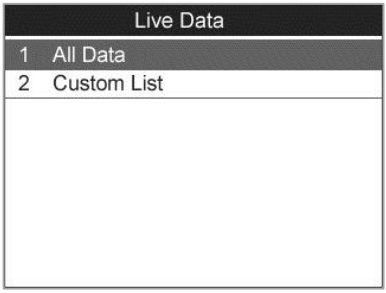


Figure 10.7

All Data

1) From the Live Data menu (Figure 10.7), use the **UP/DOWN** scroll button to select **All Data** and press the **OK** button.

2) The tool will display a list of all live sensor data (Figure 10.8).

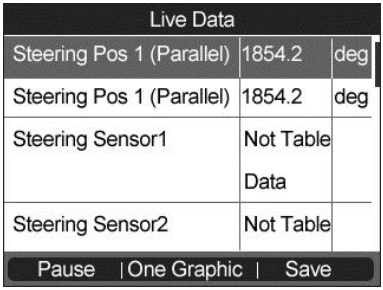


Figure 10.8

- Press the corresponding **FUNCTION** button "**Save**" to store the retrieved live data for later playback or printing.

- Press the corresponding **FUNCTION** button "**Stop Save**" to stop saving data and resume live sensor data retrieving.
- Press the corresponding **FUNCTION** button "**Pause**" to suspend live sensor data retrieving.
- Press the corresponding **FUNCTION** button "**Continue**" to resume live sensor data retrieving.
- If the **One Graphic** option is highlighted when a specific item is selected, the graphic information is available.
- When the sensor data is shown in graph, the tool offers two more options: **Two Graphic** and **Merge Graphic**. The first option can display two graphs on the same screen, and the last option can merge the two graphs into one.

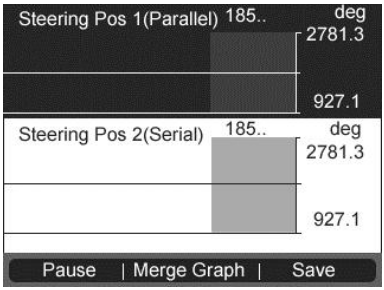


Figure 10.9

- Press the corresponding **FUNCTION** button "**Text**" or the **ESC** button to return to previous screen.

Custom List

This feature lets you customize the scan tool display to show only those PIDs that are of interest at the current time. You can customize the Live Data display by placing the Scan Tool in "Custom List" mode and selecting only the PIDs that you wish to display. To customize the Live Data display, proceed as follows:

1) To retrieve customized live sensor data, use the **UP/DOWN** scroll button to select **Custom List** from **Live Data** menu (*Figure 10.7*) and press the **OK** button.

2) Use the **UP/DOWN** scroll button to move to the desired item and press the corresponding **FUNCTION** button "**Select**" to choose.

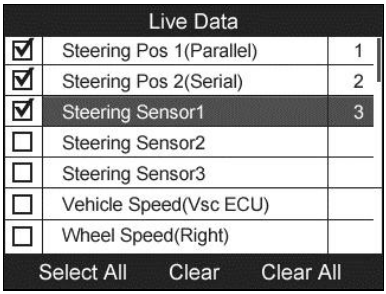


Figure 10.10

- The Selected items are marked with ticks on the left.
- The number on the right indicates sequence of the selected item.
- Press the corresponding **FUNCTION** button "**Clear**" to unselect items, or press the corresponding **FUNCTION** button "**Select All**"/"**Clear All**" to select or unselect all items.

3) Press the **OK** button to confirm your selection and retrieve the selected live sensor data.

4) Press the **ESC** button to return to the previous menu.

10.5 Utility

This function allows users to do steering angle sensor calibration, clear records and clear counter. The function options vary with the vehicles being tested.

From the function menu (*Figure 10.2*) use the **UP/DOWN** scroll button to select **Utility** and press the **OK** button. The scan tool displays function menu as below.

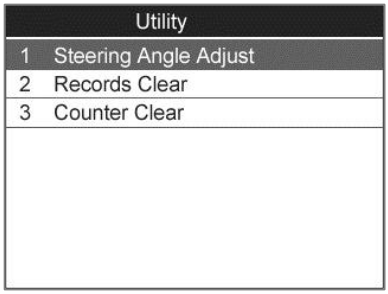


Figure 10.11

Steering Angle Adjust

1) From the **Utility** function menu (Figure 10.11) use the **UP/DOWN** scroll button to select **Steering Angle Adjust** and press the **OK** button.

2) The tool will display a series of instructions. Follow the onscreen instructions step by step until the operation is completely finished. If the operation is finished successfully, the scan tool will display a confirmation message (Figure 10.12). Otherwise, it will display a message to remind user of a problem. After you exit the diagnosis program, please repair the problem immediately.

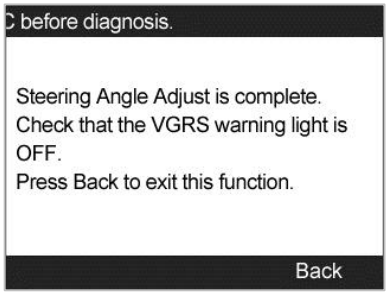


Figure 10.12

Records Clear

1) From the Utility function menu (Figure 10.11) use the **UP/DOWN** scroll button to select **Records Clear** and press the **OK** button.

2) The tool will display a list of records.

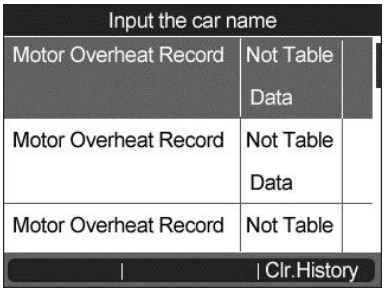


Figure 10.13

3) Select **Clr History** to continue operation or **ESC** to exit. When the command is sent, the tool will display a message as below.

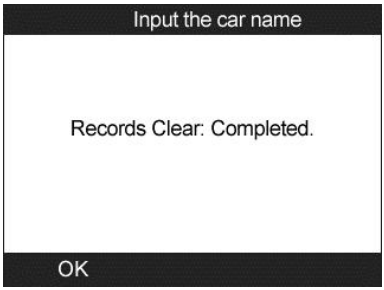


Figure 10.14

Counter Clear

1) From the Utility function menu (*Figure 10.11*) use the **UP/DOWN** scroll button to select **Counter Clear** and press the **OK** button.

2) The tool will display a prerequisite message as below. Select **Yes** to continue or **No** to exit.

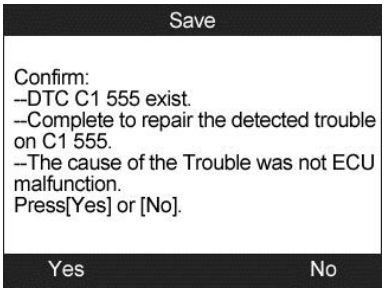


Figure 10.15

3) When the command is sent, the tool will display a message as below.



Figure 10.16

11. DPF Service

11.1 DPF Safety

The DPF function allows you to carry out numerous functions on the Diesel Particulate Filter system without having to send the car to a main dealer. The tool will retrieve/erase DPF-related codes, reset the DPF light after the filter has been replaced, micromanage the injection rate, and burn off collected particles when a maximum fill level is reached by performing static/dynamic regeneration.

ECM monitors driving style and selects a suitable time to employ regeneration. Cars driven a lot at idling speed and low load will attempt to regenerate earlier than cars driven more with high loads and engine speeds. In order for regeneration to take place, a prolonged high exhaust temperature must be attained.

In the event of the car being driving in such a way that regeneration is not possible, i.e. frequent short journeys, a diagnostic trouble code will eventually be registered, DPF light and “Check Engine” indicator come on. A service regeneration can be requested in the workshop, using the diagnostic tool.

Before carrying out a forced DPF regeneration using the tool, check the following items:

- The fuel light is not on.
- No DPF-relevant faults stored in system.
- The vehicle has the correct spec engine oil.
- The oil for diesel is not contaminated.

***IMPORTANT**: Before diagnosing a problem vehicle and attempting to perform an emergency regeneration, it is important to obtain a full diagnostic log and read out relevant measured value blocks.*

***NOTE:** The DPF will not regenerate if the engine management light is on, or there is a faulty EGR valve.*

- ***NOTE**: The ECU must be re-adapted when replacing the DPF and when topping up the fuel additive Eolys.*
- ***NOTE**: All software screens shown in this manual are examples, and actual test screens may vary for each vehicle being tested. Observe the menu titles and onscreen instructions to make correct option selections.*
- ***NOTE**: If the vehicle needs to be driven in order to perform a DPF service, ALWAYS have a second person help you. One person should drive the vehicle while the other person observes the screen on the Tool. Trying to drive and observe the Scan Tool at the same time is dangerous, and could cause a serious traffic accident.*

Take **BMW** as an example. Follow the steps below to do the tests.

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, and the engine may be off or running.
5. Turn on the scan tool and wait for the **Main Screen** to appear.
6. Use the **UP/DOWN** scroll button and **LEFT/RIGHT** scroll button to select **DPF** in the **Main Screen** (*Figure 3.1*).
7. Wait for a series of vehicle identification screens appears for user to identify the vehicle. On each screen that appears, use the **UP/DOWN** scroll button to select the correct option and then press the **OK** button. Do this until the vehicle is completely identified.

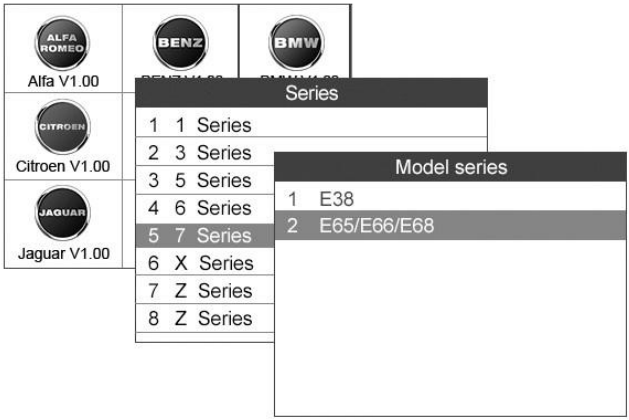


Figure 11.1

8. The screen displays as below.

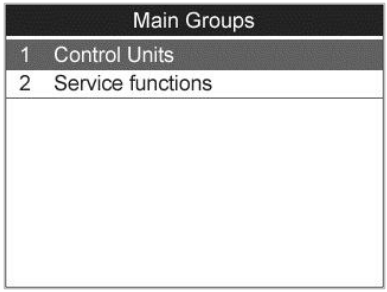


Figure 11.2

11.2 DPF Diagnostics

Use the **UP/DOWN** scroll button to select **Control Units** in the menu (Figure 11.2). The computer will automatically detect the DPF-related system, DDE, which is dedicated for BMW. For other vehicles, the system may be different. Then the screen displays as below.

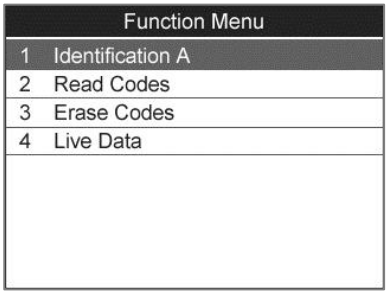


Figure 11.3

11.3 Read Codes

This function allows user to read the DPF DTCs from vehicle ECU.

1) From the function menu (Figure 11.3) use the **UP/DOWN** scroll button to select **Read Codes** and press the **OK** button.

2) View DTCs and their definitions on screen.

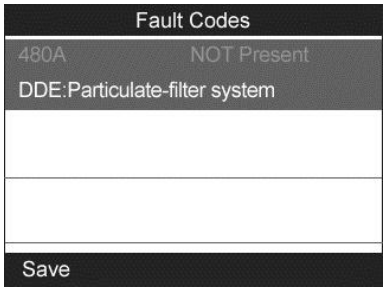


Figure 11.4

3) Select **Save** option to store the codes or press **ESC** button to exit without saving.

11.4 Erase Codes

This function allows user to erase the DPF DTCs in vehicle ECU.

1) From the function menu (*Figure 11.3*) use the **UP/DOWN** scroll button to select **Erase Codes** and press the **OK** button.

2) A warning message will come up asking your confirmation.

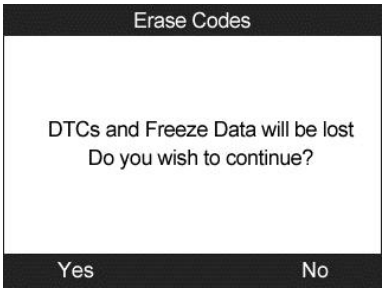


Figure 11.5

3) Select **Yes** to continue or **No** to exit. When the command is sent, the tool will display a message as below.

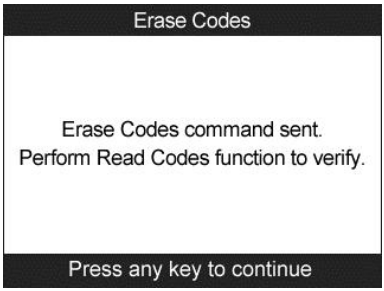


Figure 11.6

4) To make sure the codes are erased completely, perform **Read Codes** function to verify.

11.5 Live Data

This function enables users to view DPF-related data readings from a selected ECU. With the live data screen displayed, you can view the data in text or graphical format, record and save files for later viewing, pause the readings and view past data, and more.

1) From the function menu (*Figure 11.3*) use the **UP/DOWN** scroll button to select **Live Data** and press the **OK** button.

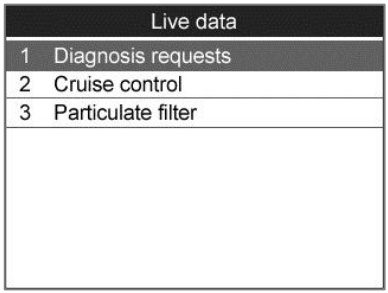


Figure 11.7

2) In this function list, **Diagnosis requests** retrieves signal data generated by the sensors, **Cruise control** shows the driving conditions, and **Particulate filter** displays the DPF system status information (Take **Particulate filter** as an example).

3) Select only the PIDs that you wish to display. Use the **UP/DOWN** scroll button to move to the desired item and press the corresponding **FUNCTION** button "**Select**" to choose.

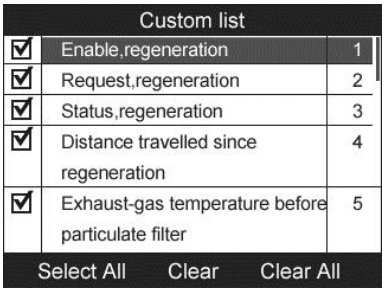


Figure 11.8

- The Selected items are marked with ticks on the left.
- The number on the right indicates sequence of the selected item.
- Press the corresponding **FUNCTION** button "**Clear**" to unselect items, or press the corresponding **FUNCTION** button "**Select All**"/"**Clear All**" to select or unselect all items.

4) Press the **OK** button to confirm your selection and retrieve the selected live sensor data.

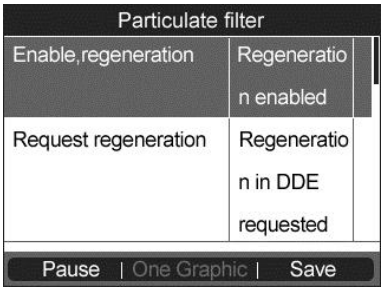


Figure 11.9

- Press the corresponding **FUNCTION** button "**Save**" to store the retrieved live data for later playback or printing.
- Press the corresponding **FUNCTION** button "**Stop Save**" to stop saving data and resume live sensor data retrieving.
- Press the corresponding **FUNCTION** button "**Pause**" to suspend live sensor data retrieving.
- Press the corresponding **FUNCTION** button "**Continue**" to resume live sensor data retrieving.
- If the **One Graphic** option is highlighted when a specific item is selected, the graphic information is available.
- When the sensor data is shown in graph, the tool offers two more options: **Two Graphic** and **Merge Graphic**. The first option can display two graphs on the same screen, and the last option can merge the two graphs into one.

5) Press the **ESC** button to return to the previous menu.

11.6 Identification A

This function enables you to retrieve the DPF-related control unit information.

1) From the function menu (*Figure 11.3*) use the **UP/DOWN** scroll button to select **Identification A** and press the **OK** button.

2) The tool will display the ECU information for your viewing and saving.

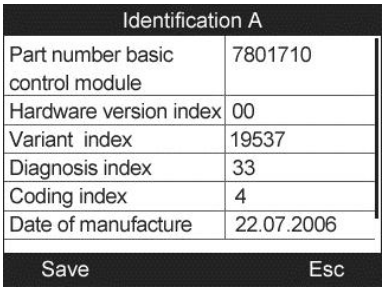


Figure 11.10

3) Select **Save** option to save the information for later review or press the **ESC** button to return to the previous menu.

11.7 DPF Service Functions

Use the **UP/DOWN** scroll button to select **Service Functions** in the menu (*Figure 11.2*). The screen displays as below.

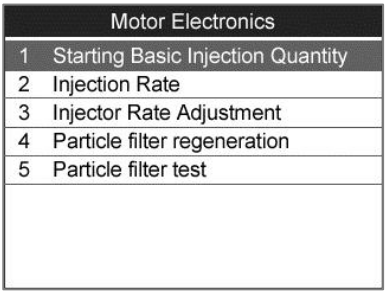


Figure 11.11

Starting Basic Inspection Quantity

This function enables you to start fuel delivery matching.

1) From the service functions menu (Figure 11.11) use the **UP/DOWN** scroll button to select **Starting Basic Inspection Quantity** and press the **OK** button.

2) The tool communicates with the vehicle and reads the fault codes memory. Follow the on-screen instructions to finish this procedure.

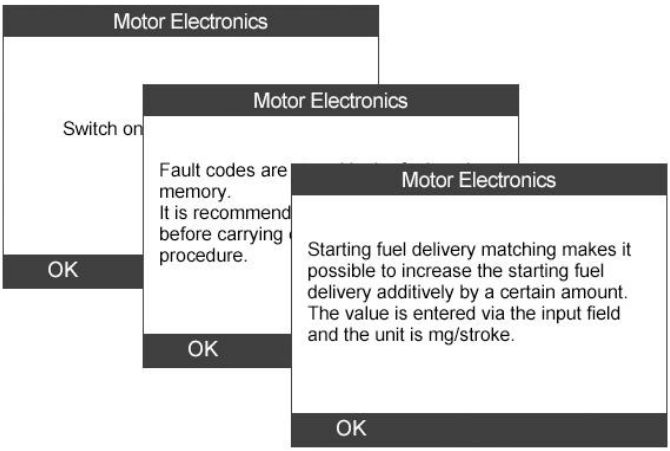


Figure 11.12

3) The tool will display a function list menu as below. In this menu, you can enter new value for adjustment, or reset adjustment to 0.

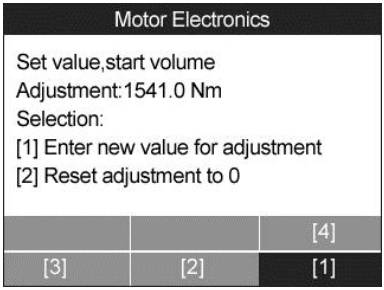


Figure 11.13

The option keys at the bottom of the screen work as below.

[1] Enter new value for adjustment

[2] Reset adjustment to 0

[3] End with programming (the new value is permanently stored)

[4] End without programming (the old value is retained)

[1] Enter New Value for Adjustment

From the **Starting Basic Inspection Quantity** menu (*Figure 11.13*) use the **LEFT/RIGHT** scroll button to select **[1]** and press the **OK** button. The screen displays as below. You will need to input a new value for fuel delivery rate adjustment.

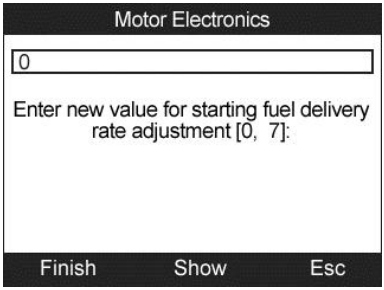


Figure 11.14

The three keys at the bottom of the screen work as below.

[Finish]: After entering a new value, use this key to save the value to the tool.

[Show]: Press this key to pop up a soft keyboard to facilitate your input (Figure 11.15).

[Esc]: Press this key to exit.

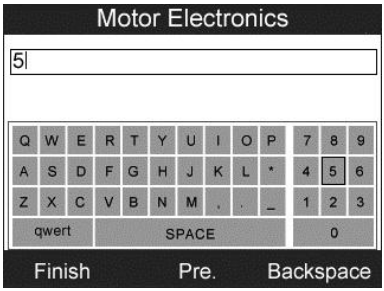


Figure 11.15

The three keys at the bottom of the screen work as below.

[Finish]: When you finished the input, select this key to confirm your input and exit.

[Pre.]: Moves a space to the left.

[Backspace]: Uses this key to erase the previous digit or character when typing.

- ***NOTE:*** *The data you input must be in the reasonable range. If the input data is out of range, the tool will display a warning message "Permissible adjustment range exceeded".*

[2] Reset Adjustment to 0

From the **Starting Basic Inspection Quantity** menu (*Figure 11.13*) use the **LEFT/RIGHT** scroll button to select **[2]** and press the **OK** button. The tool will automatically reset the value to zero.

[3] Store Data and Exit

When you have finished the fuel delivery rate adjustment, use the **LEFT/RIGHT** scroll button to select **[3]** and press the **OK** button to store the new value in the control units; or, select **[4]** and press the **OK** button to retain the old value.

Injection Rate

This function enables you to adjust the injection volume.

1) From the service functions menu (*Figure 11.11*) use the **UP/DOWN** scroll button to select **Injection rate** and press the **OK** button.

2) The tool communicates with the vehicle and reads the fault codes memory. Follow the on-screen instructions to finish this procedure.

3) Then the tool will display as below. In this function, you can enter new value for matching, or reset matching to 100%.

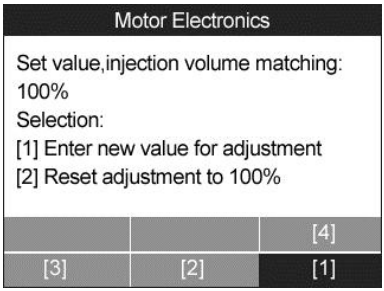


Figure 11.16

The option keys at the bottom of the screen work as below.

[1] Enter new value for adjustment

[2] Reset adjustment to 100%

[3] End with programming (the new value is permanently stored)

[4] End without programming (the old value is retained)

[1] Enter New Value for Adjustment

From the **Injection rate** menu (Figure 11.16) use the **LEFT/RIGHT** scroll button to select **[1]** and press the **OK** button. The screen displays as below. You will need to input a new value for injection volume matching.

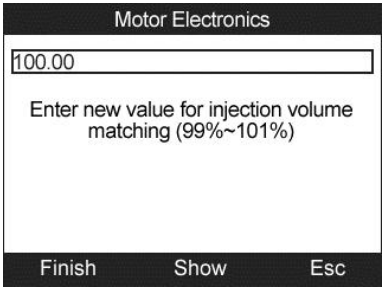


Figure 11.17

The three keys at the bottom of the screen work as below.

[Finish]: After entering a new value, use this key to save the value to the tool.

[Show]: Press this key to pop up a soft keyboard to facilitate your input (Figure 11.18).

[Esc]: Press this key to exit.

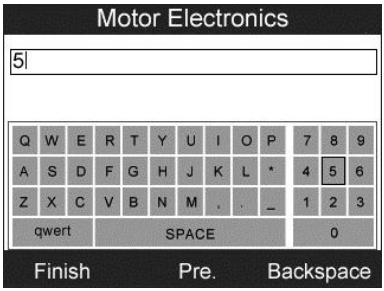


Figure 11.18

The three keys at the bottom of the screen work as below.

[Finish]: When you finished the input, select this key to confirm your input and exit.

[Pre.]: Moves a space to the left.

[Backspace]: Uses this key to erase the previous digit or character when typing.

- ***NOTE**: The data you input must be in the reasonable range. If the input data is out of range, the tool will display a warning message "Permissible adjustment range exceeded".*

[2] Reset Adjustment to 100%

From the **Injection rate** menu (*Figure 11.16*) use the **LEFT/RIGHT** scroll button to select **[2]** and press the **OK** button. The tool will automatically reset the value to 100%.

[3] Store Data and Exit

When you have finished the injection volume adjustment, use the **LEFT/RIGHT** scroll button to select **[3]** and press the **OK** button to

store the new value in the control units; or, select **[4]** and press the **OK** button to retain the old value.

Injector Rate Adjustment

This function enables you to adjust the injector rate for individual cylinders.

1) From the service functions menu (*Figure 11.11*) use the **UP/DOWN** scroll button to select **Injector rate adjustment** and press the **OK** button.
2) The tool communicates with the vehicle and reads the fault codes memory. Follow the on-screen instructions to finish this procedure.
3) Then the tool will display as below. In this function, you can enter new value for each cylinder.

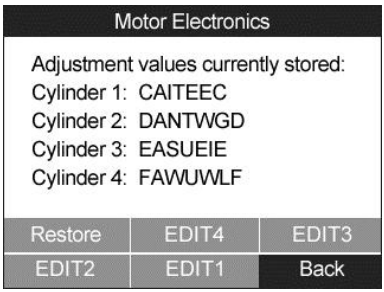


Figure 11.19

The option keys at the bottom of the screen work as below.

[EDIT 1] Edit Cylinder 1 injector code

[EDIT 2] Edit Cylinder 2 injector code

[EDIT 3] Edit Cylinder 3 injector code

[EDIT 4] Edit Cylinder 4 injector code

[Back] Return to the previous menu

[Restore] Retain the old value

[1] Enter New Value for Cylinder

From the **Injector rate adjustment** menu (*Figure 11.19*) use the **LEFT/RIGHT** scroll button to select one option and press the **OK** button. The screen displays as below. You will need to input a new value for Cylinder injector.

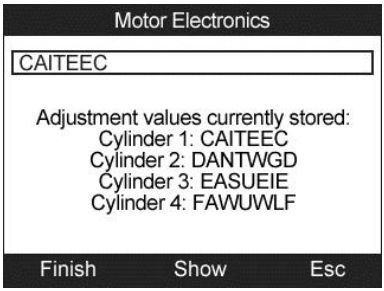


Figure 11.20

The three keys at the bottom of the screen work as below.

[Finish]: After entering a new value, use this key to save the value to the tool.

[Show]: Press this key to pop up a soft keyboard to facilitate your input (Figure 11.21).

[Esc]: Press this key to exit.

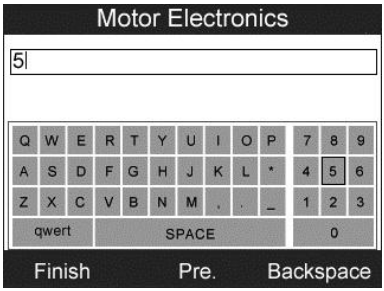


Figure 11.21

The three keys at the bottom of the screen work as below.

[**Finish**]: When you finished the input, select this key to confirm your input and exit.

[**Pre**.] : Moves a space to the left.

[**Backspace**]: Uses this key to erase the previous digit or character when typing.

[2] Restore the Old Value

From the **Injector rate adjustment** menu (*Figure 11.19*) use the **LEFT/RIGHT** scroll button to select **[Restore]** and press the **OK** button. The tool will automatically retain the old value.

When you have finished the injector rate adjustment, use the **LEFT/RIGHT** scroll button to select **[Back]** and press the **OK** button to return to the previous menu.

Particle Filter Regeneration

This function enables you to perform the particle filter regeneration.

1) From the service functions menu (*Figure 11.11*) use the **UP/DOWN** scroll button to select **Particle filter regeneration** and press the **OK** button.

2) The tool communicates with the vehicle and reads the fault codes memory. Follow the on-screen instructions to check the prerequisites before particle filter regeneration, such as the fuel, the time and driving style.

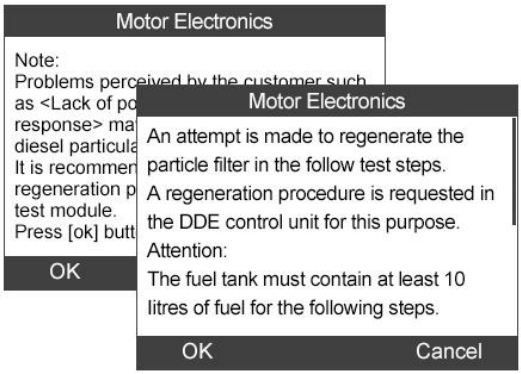


Figure 11.22

3) If every prerequisite is met, the tool will ask your confirmation to proceed as below. Select **Request** to begin a regeneration or **End** to end the service function and exit.

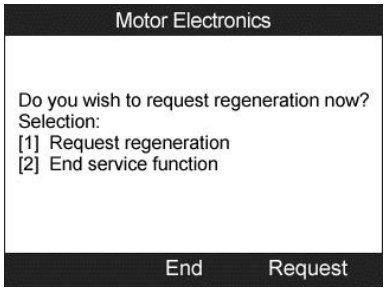


Figure 11.23

4) A series of instruction screens appears for users to perform the particle filter regeneration step by step. Follow the onscreen instructions and press the **OK** button (*Figure 11.24*). Do this until the tool reads off the regeneration status as below (*Figure 11.25*).

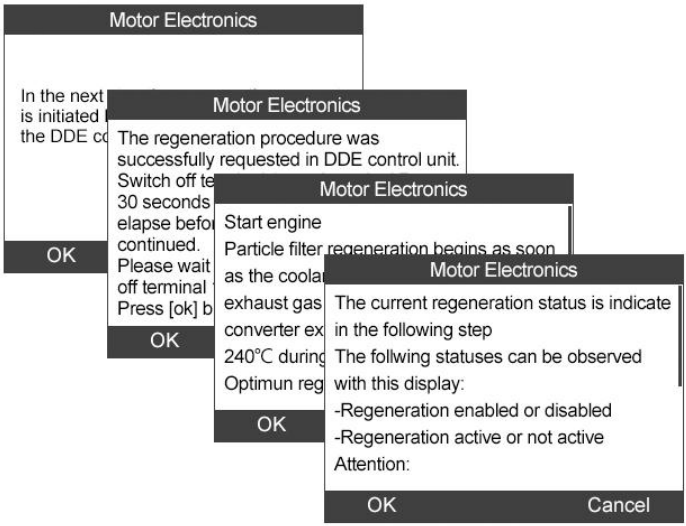


Figure 11.24

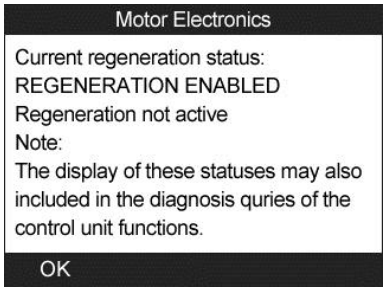


Figure 11.25

5) When the particle filter regeneration is complete, the tool will ask your confirmation to exit the display. Select **Repeat** to check the status again or **End** to end the service function and exit.

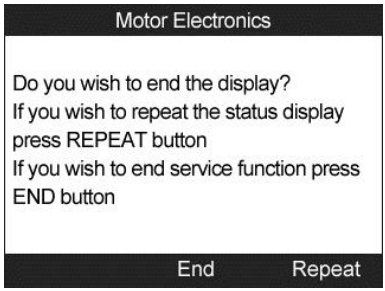


Figure 11.26

- ***NOTE**: In the case of a particle filter heavily loaded with soot, it can occur that the regeneration request is blocked again after a short time or is not released. In this case, it is required to regenerate the particle filter in a motorway or cross-country trip taking approx. 30 minutes at a speed that is as constant as possible. Subsequently, the service function "Particle filter regeneration" must be run again.*

- ***NOTE**: During the regeneration phase and with the engine running, it can also occur that the display for "Regeneration active" jumps to "Regeneration not active". This behavior can be seen exclusively with the vehicle stationary with the engine running. This behavior does not impair the scheduled course of the regeneration in general.*

Particle Filter Test

It is advisable to carry out a series of particle filter tests as a result of constant DPF regeneration, such as checking oil level, oil change interval for diesel contamination, swirl flaps, backpressure sensors and particle filter soot remains.

1) From the service functions menu (*Figure 11.11*) use the **UP/DOWN** scroll button to select **Particle filter test** and press the **OK** button.

2) The tool communicates with the vehicle and reads the fault codes memory. If there is no relevant fault code stored in DDE, the screen displays as below. Select **Cancel** to exit this function.

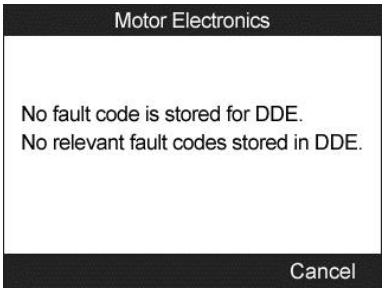


Figure 11.27

3) If there are DPF-related codes stored in DDE, the screen displays as below. Select **OK** to continue or **Cancel** to exit this function.

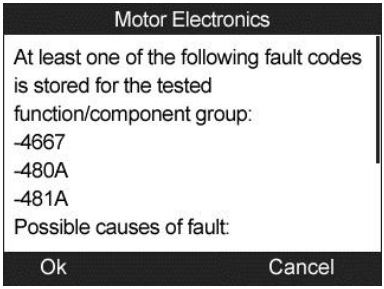


Figure 11.28

4) The tool shows a list of particle filter tests as below.

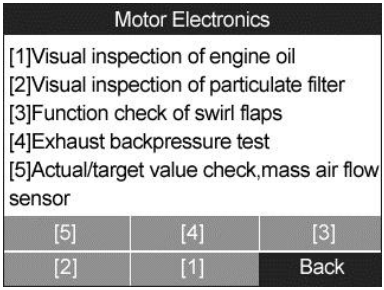


Figure 11.29

The option keys at the bottom of the screen work as below.

[1] Visual inspection of engine oil

[2] Visual inspection of particulate filter

[3] Function check of swirl flaps

[4] Exhaust backpressure test

[5] Actual/target value check-mass air flow sensor

[Back] Return to the previous menu

[1] Visual Inspection of Engine Oil

a) From the particle filter test menu (*Figure 11.29*) use the **LEFT/RIGHT** scroll button to select **[1]** and press the **OK** button.

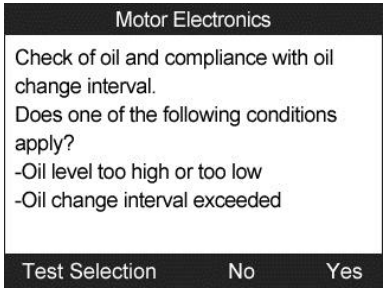


Figure 11.30

b) Select **No** if you visually find nothing wrong with your engine oil. The tool displays as below. Press **OK** button to return to previous menu.

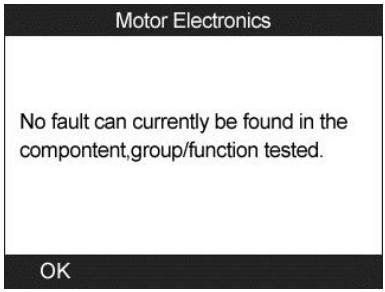


Figure 11.31

c) Or, select **Yes** if you visually find the engine oil level or oil change interval has some problems. The tool displays as below. Press **OK** button to return to previous menu.

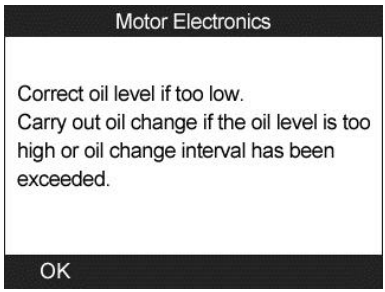


Figure 11.32

d) Or, select **Test Selection** to return to previous menu.

[2] Visual Inspection of Particulate Filter

a) From the particle filter test menu (*Figure 11.29*) use the **LEFT/RIGHT** scroll button to select **[2]** and press the **OK** button.

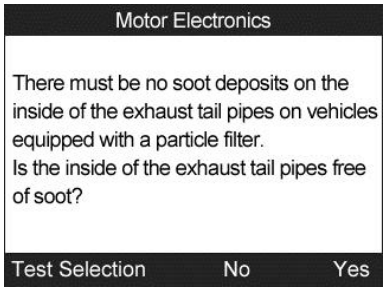


Figure 11.33

b) Select **Yes** if you visually find no soot on the inside of the exhaust tail pipes. The tool displays as below. Press **OK** button to return to previous menu.

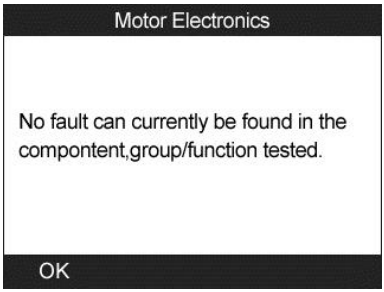


Figure 11.34

c) Or, select **No** if you visually find soot on the inside of the exhaust tail pipes. The tool displays as below. Follow the on-screen instructions to carry out particle filter visual inspections. Then select the correct options according to the test results.

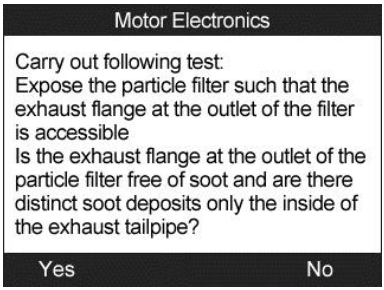


Figure 11.35

d) Or, select **Test Selection** to return to previous menu.

[3] Function Check of Swirl Flaps

a) From the particle filter test menu (*Figure 11.29*) use the **LEFT/RIGHT** scroll button to select **[3]** and press the **OK** button.

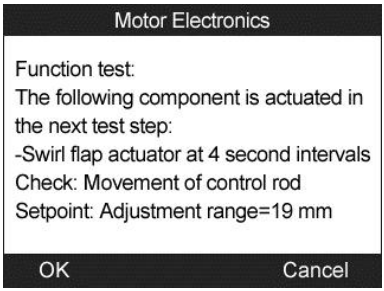


Figure 11.36

b) Select **OK** to activate swirl flaps and the tool displays as below (Figure 11.37). Press **OK** button to end the activation and exit.

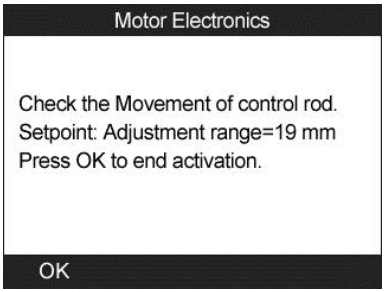


Figure 11.37

c) Or, select **Cancel** to return to previous menu.

[4] Exhaust Backpressure Test

a) From the particle filter test menu (*Figure 11.29*) use the **LEFT/RIGHT** scroll button to select **[4]** and press the **OK** button.

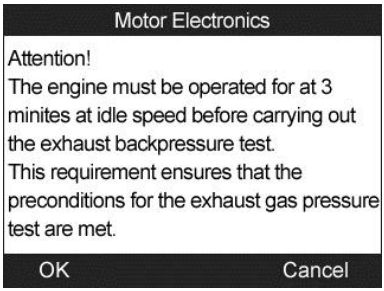


Figure 11.38

b) Press **OK** button to proceed and the tool displays as below. Or, select **Cancel** to return to previous menu.

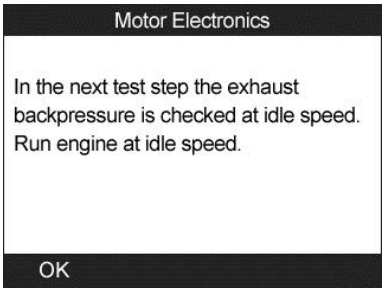


Figure 11.39

c) Check the exhaust backpressure with engine running idle. The tool will read off the actual backpressure value and compare with the upper limit (Figure 11.40). Select **OK** to continue the test or **Cancel** to return to previous menu.

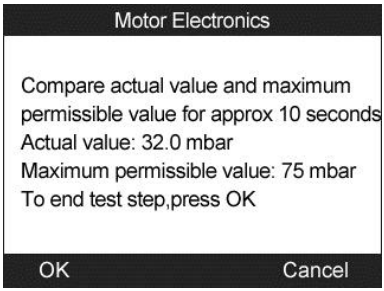


Figure 11.40

- If the engine is not running at idle speed, the tool will display a warning message (Figure 11.41). Select **OK** to repeat the test or select **Cancel** to exit.

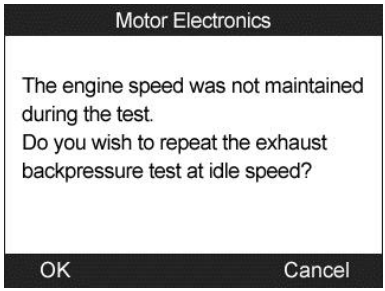


Figure 11.41

d) Check the exhaust backpressure with engine running at 2000 rpm. The tool will read off the actual backpressure value and compare with the upper limit (Figure 11.42). Select **OK** to continue the test or **Cancel** to return to previous menu.

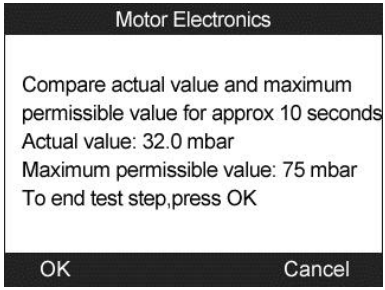


Figure 11.42

- If the engine is not running at 2000 rpm, the tool will display a warning message (Figure 11.43). Select **OK** to repeat the test or select **Cancel** to exit.

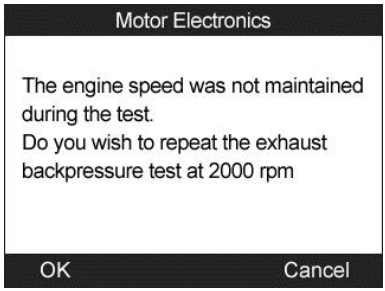


Figure 11.43

e) Check the exhaust backpressure with engine running at cut-off speed. The tool will read off the actual backpressure value and compare with the upper limit (Figure 11.44). Select **OK** to end the test or **Cancel** to return to previous menu.

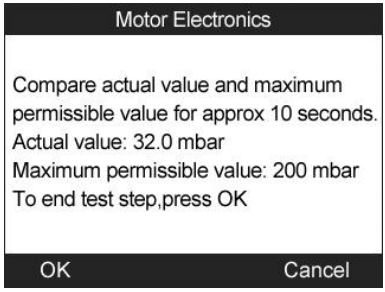


Figure 11.44

- If the engine is not running at cut-off speed, the tool will display a warning message (Figure 11.45). Select **OK** to repeat the test.

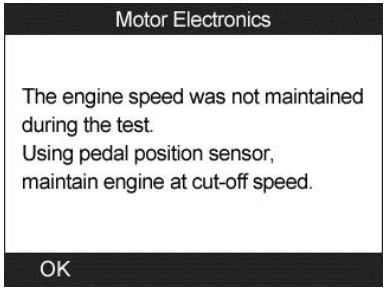


Figure 11.45

f) The tool will submit a summary report for your confirmation (Figure 11.46).

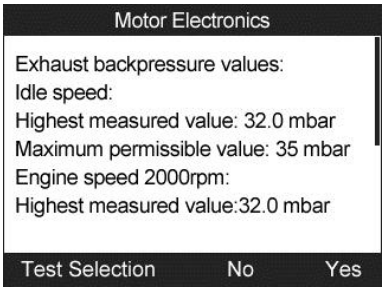


Figure 11.46

g) Select **Yes** if the actual values exceed the limits. The tool displays an instruction message as below. Press **OK** button to return to previous menu.

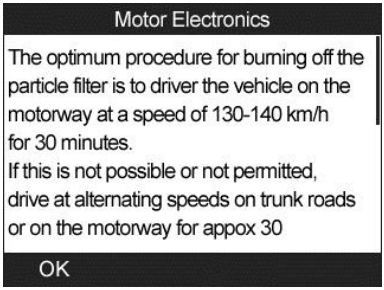


Figure 11.47

h) Or, select **No** if the actual values are within the limits, then the tool will return to previous menu.

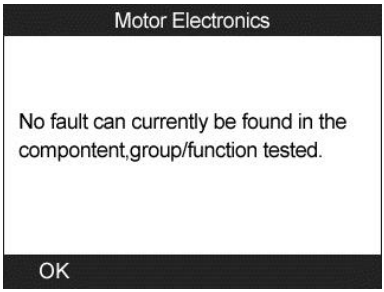


Figure 11.48

i) Or, select **Test Selection** to return to previous menu.

[5] Actual/Target Value Check-Mass Air Flow Sensor

a) From the particle filter test menu (*Figure 11.29*) use the **LEFT/RIGHT** scroll button to select **[5]** and press the **OK** button.

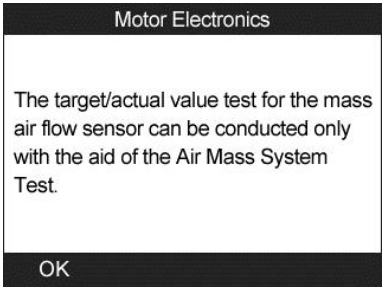


Figure 11.49

b) Press **OK** button to return to previous menu.

12. Print and Update

12.1 Print Data

The Print Data function allows printing out diagnostic data recorded by the scan tool or customized test reports by connecting the scan tool to a PC or laptop with the USB cable supplied.

- ***To print out retrieved data, you need the following tools:***

  MaxiCHECK Series scan tool

  A PC or laptop with USB ports

  A USB cable

Note: *The print function is not available on Mac for the present.*

1) Download and install the **Maxi PC Suite** application in our website: www.autel.com or our distributors' sites.

2) Connect the scanner to computer with the USB cable supplied.

3) Run **Printer** software on computer.

4) Select **Playback** function in **Main Screen** of the scan tool. In **Scan** screen, use the **UP/DOWN** scroll button to select the files you want to print. Wait for the reviewing window to display (*Figure 4.2*), and then select **Print** function on the bottom. The selected file will be uploaded to your computer. For more detailed instructions, please refer to ***4. Playback Data***.

5) The **Printer** will show as below.



Figure 12.1

6) The selected data will display on the textbox of **Printer**. By selecting the function keys on the right, you could execute the following operations:

- **Print** – Print all data in the textbox to a printer connected to your computer.
- **Edit** – Once clicked, the software will automatically open a NOTEPAD window with all recorded data showing on.
- **Copy** – Copy all data in the textbox to the clipboard.
- **Clear** – Delete all data in the textbox.
- **Exit** – Quit the operation.

7) You are also allowed to edit, copy, and delete the data in the **Printer** window.

NOTE: The scan tool can only print text data even though the data is saved in graphic mode.

12.2 Software Update

This function allows you to update the scan tool software through a computer.

Register the Tool

User would update the scan tool **ONLY** after you had registered the tool on our website http://pro.autel.com. Then you could download software, update online, retrieve information and get warranty service. You can use a **Mac** or a **Windows-based** computer to download the suitable version and proceed.

NOTE: Prior to registration, please confirm your network is working properly.

1. Visit our website http://pro.autel.com.
2. On the Sign In page, input your account ID and other information to log in, if you already have an account.

3. If you are a new member to Autel and do not have an account yet, click the **Create Autel ID** button on the left side.
4. Enter the required information in the input fields, read through Autel's Terms and Conditions and tick on **Agree**, and then click **Create Autel ID** at the bottom to continue.
5. The online system will automatically send a confirmation email to the registered email address. Validate your account by clicking the link provided through the mail. A product registration screen opens.
6. Select the product model of your tool, enter the product serial number and password on the Product Registration screen, and click **Submit** to complete the registration procedure.

NOTE: Please use the About function to find out the Product Serial No. and Register Password. For details, please refer to the Section ***3.6 System Setup****.*

Update Procedure

Autel frequently releases software updates that you can download. The Update feature makes it very easy to determine and get exactly what you need.

1. Download and install the **Maxi PC Suite** application in our website: www.autel.com or our distributors' site. You can use a **Mac** or a **Windows-based** computer to download the suitable version and proceed.
2. Make sure that your computer is connected to the Internet.
3. Load the SD card of the scan tool to your PC.
4. Run the **Maxi PC Suite**. Wait for the Log In window to pop up (Figure 12.2).

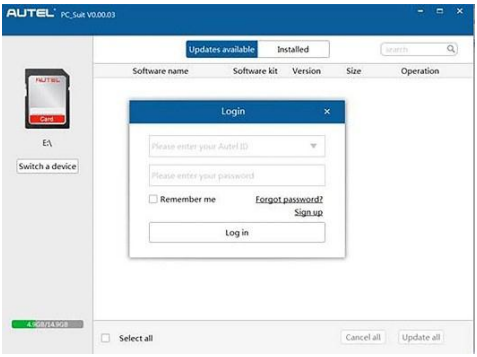


Figure 12.2

5. Enter your Autel ID and password and wait for the Update window to display. If you forget your password unintentionally, you may always click the [**Forget Password?**] to link to our website and get your password back.

6. Select the product type and serial number, click **OK** to continue.

7. In the **Update** window, select the items you want to install. Usually, you should install all available updates.

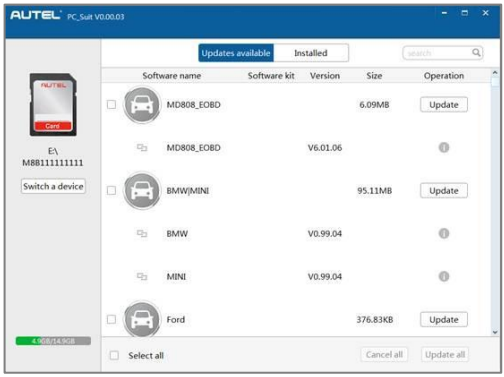


Figure 12.3

Generally, there are two ways to update programs:

Batch Update

- Select the programs that you would update by clicking on the check boxes next to those items. Then click the **Update Selected Items** button on the right side of screen.
- Or, click on the **Select All** checkbox on the right side of screen and all updatable items will be selected automatically. Then click the **Update Selected Items** button on the right side of screen.
- Check the updating process by observing the upper left progress bar [Downloads] and upper right progress bar [Installs]. You may also find progress information in the Status column of updated items.
- Anytime you could click the **Pause** button on the right side of screen to suspend all progresses, and the state of those suspended items would change to stopped.
- To resume updating process, you may need to select those suspended items again, and then click the **Update Selected Items** button. The progress will resume from the break point.
- When the downloading is completed, the downloaded programs will be installed automatically. The new version will replace the old version.

Single Update

- Find out the desired updating item and click the **Install** button in the same line. With updating in progress, the **Install** button changes to **Pause**.
- Check the updating process by observing the upper left progress bar [Downloads] and upper right progress bar [Installs]. You may also find progress information in the Status column of updated items.
- Anytime you could click the **Pause** button in the line to suspend

this progress, and the state of this item would change to stopped.

- To resume updating process, click the **Install** button in the line again. The progress will resume from the break point.
- When the downloading is completed, the downloaded program will be installed automatically. The new version will replace the old version.

View or Delete Programs

To view the list of installed programs or to delete an installed program, please follow these steps:

- Click on the Installed Programs tag entry and the page will show the list of programs installed.
- Select the program(s) that you would delete.
  - ✧ **Batch delete**: Select the programs that you would delete by clicking on the check boxes to the left of those items. Then click the **Delete** button on the right side of screen.
  - ✧ **Single delete**: Click the **Uninstall** button in the line of your would-be-deleted program.
- A window asking "Are you sure to delete the software?" will pop up for your confirmation.

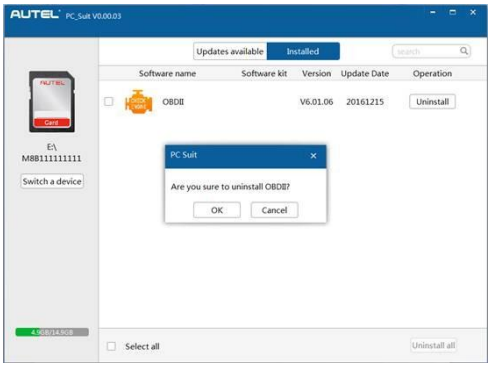


Figure 12.4

- Click on **OK** to delete the program(s) selected, or on **Cancel** to

cancel the action.

- The deleted program will automatically add to the end of program list in the Update page in case you would like to install again.

13. Warranty and Service

13.1 Limited One Year Warranty

Autel warrants to its customers that this product will be free from all defects in materials and workmanship for a period of one (1) year from the date of the original purchase, subject to the following terms and conditions:

1) The sole responsibility of Autel under the Warranty is limited to either the repair or, at the option of Autel, replacement of the scan tool at no charge with Proof of Purchase. The sales receipt may be used for this purpose.

2) This warranty does not apply to damages caused by improper use, accident, flood, lightning, or if the product was altered or repaired by anyone other than the Manufacturer's Service Center.

3) Autel shall not be liable for any incidental or consequential damages arising from the use, misuse, or mounting of the scan tool. Some states do not allow limitations on how long an implied warranty lasts, so the above limitations may not apply to you.

4) All information in this manual is based on the latest information available at the time of publication and no warranty can be made for its accuracy or completeness. Autel reserves the right to make changes at any time without notice.

13.2 Service Procedures

If you have any questions, please contact your local store, distributor or visit our website at www.autel.com.

If it becomes necessary to return the scan tool for repair, contact your local distributor for more information.