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Safety Information

For your own safety and the safety of others, and to prevent damage to the device and vehicles upon which it is used, it is important that the safety instructions herein presented throughout this manual be read and understood by all persons operating, or coming into contact with, the device.

There are various procedures, techniques, tools, and parts for servicing vehicles, as well as in the skill of the person doing the work. Because of the vast number of test applications and variations in the products that can be tested with this equipment, we cannot possibly anticipate or provide advice or safety messages to cover every circumstance. It is the automotive technician's responsibility to be knowledgeable of the system being tested. It is crucial to use proper service methods and test procedures. It is essential to perform tests in an appropriate and acceptable manner that does not endanger your safety, the safety of others in the work area, the device being used, or the vehicle being tested.

Before using the device, always refer to and follow the safety messages and applicable test procedures provided by the manufacturer of the vehicle or equipment being tested. Use the device only as described in this manual. Read, understand, and follow all safety messages and instructions in this manual.

Safety Messages

Safety messages are provided to help prevent personal injury and equipment damage. All safety messages are introduced by a signal word indicating the hazard level.

DANGER

Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury to the operator or to bystanders.

WARNING

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury to the operator or to bystanders.

Safety Instructions

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:

- Perform diagnosis or service 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.
- Keep a fire extinguisher suitable for gasoline/chemical/electrical fires nearby.
- Put the transmission in PARK (for automatic transmission) or NEUTRAL (for manual transmission) and make sure the parking brake is engaged.
- 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.
- Avoid electrostatic interference during operation. If a failure occurs due to electrostatic interference, Please try to operate again.
- Refer to the user's manual for the vehicle being serviced and adhere to all diagnostic procedures and precautions. Otherwise personal injury or unneeded repairs may result.

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1 General Information

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.

Oil 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, the system also needs to be reset.

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.

SAS

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 light systems.

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.

DPF

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 of the soot 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.

BMS

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.

2 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.

Conventions

The following conventions are used.

Bold Text

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

Example:

- Tap **OK**.

Notes and Important Messages

Notes

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

Example:

NOTE

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

Important

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

Example:

! **IMPORTANT**

Keep the cable away from heat, oil, sharp edges and moving parts. Replace damaged cables immediately.

Hyperlinks

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

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.

3 Using the Scan Tool

Tool Description

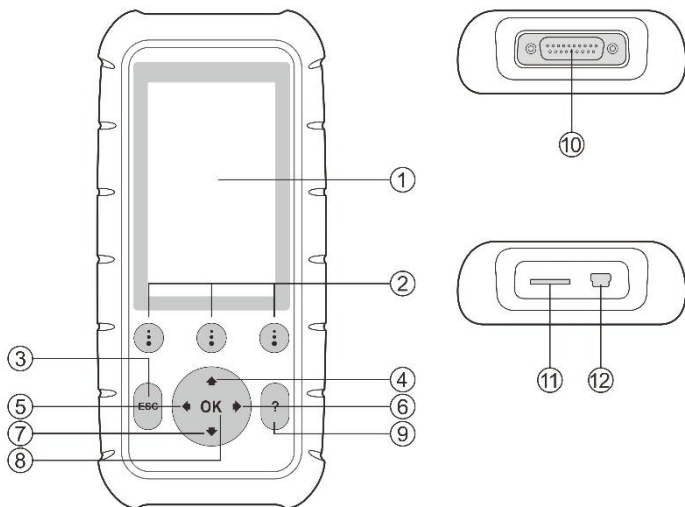


Figure 3-1 MD808/808 Pro Product Views

1. **LCD DISPLAY** – indicates test results. TFT color display (800 x 480 dpi).
2. **FUNCTION BUTTON** – corresponds with “buttons” on screen for executing commands.
3. **ESC BUTTON** – cancels a selection (or an action) from a menu or returns to the previous screen.
4. **UP SCROLL BUTTON** – moves up through menu and submenu items in menu mode. When more than one screen of data is retrieved, moves up through the current screen to the previous screens for additional data. When looking up DTC, it is used to change value of selected character.
5. **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.

6. **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.
7. **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.
8. **OK BUTTON** – confirms a selection (or an action) from a menu.
9. **HELP BUTTON** – provides help information for the function conducted on the screen.
10. **CONNECTOR** – connects the scan tool to the vehicle's Data Link Connector (DLC) via OBD II cable.
11. **Micro SD CARD SLOT** – holds the System Micro SD card.
12. **USB CONNECTOR** – connects the scan tool for power supply.

Technical Specifications

Table 3-1 Specifications

Item	Description
Processor	ARM® Thumb® Processor running at up to 400 MHz
Memory	32MB, 166 MHz
Display	4.0 inch LCD with 800x480 resolution
Connectivity	Mini USB: 2.0 Micro SD Card (16GB)
Power Consumption	1.7 W
Operating Temperature	-10°C to 60°C (14°F to 140°F)
Storage Temperature	-20°C to 70°C (-4°F to 158°F)
Operating Humidity	5% - 95% non-condensing
Housing	Strong plastic housing with protective rubber boot

Item	Description
Dimensions	202 mm x 92 mm x 35 mm (8.35" x 3.62" x 1.4")
Weight	313 g (0.69 lb.)

Accessories Included

- 1) **User Manual** – instructions on tool operations.
- 2) **OBD II Cable** – provides power to tool and communicates between the tool and the vehicle.
- 3) **USB Cable** – used to update the scan tool, and to print retrieved data.
- 4) **Micro SD Card** – contains the scan tool's operation software and applications.
- 5) **Quick Guide** – instructions on basic operations, tool registration and software update, etc.
- 6) **Carry Case** – a plastic case to store the scan tool when not in use.

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.

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.

- USB external power adapter.
- OBD II cable connection to vehicle.

During vehicle testing, power for the scan tool is usually provided through the vehicle OBD II cable connection. When the scan tool is not connected to a vehicle, the scan tool can be powered with a USB external power adapter.

➤ **To power on the scan tool via OBD II cable connection with the vehicle:**

- 1) Connect the OBD II cable to scan tool.

- 2) Find DLC on the 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 OBD II cable to the vehicle DLC.
- 4) Wait for the Main Screen to appear.

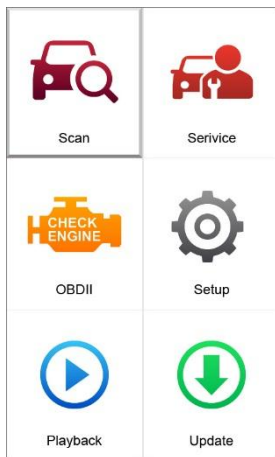


Figure 3-2 Sample Main Screen

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 the 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.

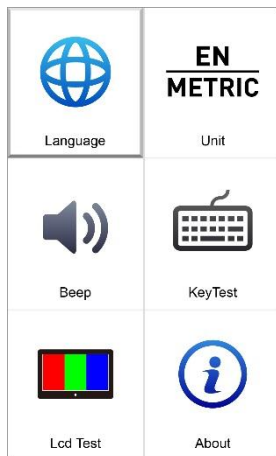


Figure 3-3 Sample Setup Screen

Language

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



Figure 3-4 Sample language Setting

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



Figure 3-5 Sample Measurement Unit Setting

- 3) Press **OK** to save your selection and return to previous menu. Or, press **ESC** 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 **OK**.
- 2) From **Beep Set** menu, use the **LEFT/RIGHT** scroll button to select **ON** or **OFF** to turn on/off the beep.



Figure 3-6 Sample Beep Setting

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 Test**, and press **OK**.
- 2) Press any key to start test. When you press a key, the edge around corresponding key on the screen should turn blue. 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 **OK**.
- 2) Look for missing spots in the red, green, blue, black and white LCD display.
- 3) When completed, press **ESC** 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 **OK**; wait for the **About** screen to appear.
- 2) View tool information on screen. Press **ESC** to exit.



Figure 3-7 Sample About Screen – MD808



Figure 3-8 Sample About Screen – MD808 Pro

Update

Please refer to [Software Update](#) on page 79 for details.

Vehicle Coverage

On the basis of all OBD II compliant vehicles, including those equipped with universal protocol – Control Area Network (CAN), MaxiDiag® MD808/808 Pro Scanners expand vehicle system coverage and offer more diagnostic power to the vehicle technicians. Featuring expanded global vehicle coverage, the scan tools offer technicians a significant improvement on model years covered by supported manufactures.

Product Troubleshooting

Vehicle Linking Error

A communication error occurs if the scan tool fails to communicate with the vehicle's ECU (Electronic Control Unit). Please follow the instructions below 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 (Electronic Control Unit) is too slow to respond to requests. Please follow the steps below 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, please follow the instructions below 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 Scan

The MaxiDiag® MD808/MD808 Pro are powerful diagnostic and scan tools that provide basic diagnoses and services for all available modules on the vehicle (MD808 for four systems: engine, transmission, ABS and SRS; MD808 Pro for full systems).

Before using this scan function, please follow the on-screen instructions for selection from vehicle manufacturer to model year to identify the vehicle being tested.

After all the selections are made, a vehicle information summary will pop up for your confirmation, press **Yes** to continue.

Scan

The **Scan** application allows you to establish a data link to the electronic control system of the test vehicle via OBD cable connection for basic diagnosis. You can retrieve vehicle diagnostic information such as trouble codes, event codes and live data for various vehicle control systems.

There are three options available when accessing the Scan section:

1. **Auto Scan** – starts auto scanning the statuses and DTCs of all available systems on the vehicle
2. **Control Unit** – displays a selection menu of all available units of the test vehicle
3. **Vehicle Information** – shows the information of the test vehicle

Auto Scan

The **Auto Scan** function performs a comprehensive scanning over all the systems on the vehicle's ECU in order to locate fault systems and retrieve DTCs. The sample operation interface of Auto Scan shows as below:

The screenshot shows an 'Auto Scan' interface. At the top, a progress bar is at 100%. Below it is a table with four rows of scanned systems. The first row shows a fault, while the others show 'Pass | No Fault'. At the bottom, there are three buttons: 'Quick Erase', 'Save', and 'Display DTC'.

100% Auto Scan		
1	ABS--Anti-Lock Brake / Traction Control Module	Fault 3
2	EPS--Electronic-Controlled Power Steering	Pass No Fault
3	PCM--Powertrain	Pass No
4	TCM--Transmission Control Module	Pass No Fault
Quick Erase Save Display DTC		

Figure 4-1 Sample Auto Scan Screen

- Progress Bar** – indicates the progress of auto scanning, 100% means the scan is completed.
- Main Section**
 - ✓ Column 1 – displays the system numbers
 - ✓ Column 2 – displays the scanned systems
 - ✓ Column 3 – displays the diagnostic marks indicating different conditions of the test result:
 - ✧ **-!-**: Indicates that the scanned system may not support the code reading function, or there is a communication error between the tester and the control system.
 - ✧ **-?-**: Indicates that the vehicle control system has been detected, but the tester cannot accurately locate it.
 - ✧ **Fault | #**: Indicates there is/are detected fault code(s) present; “#” indicates the number of the detected faults.
 - ✧ **Pass | No Fault**: Indicates the system has passed the scanning process and no fault has been detected.
- Functional Buttons**
 - ✧ **Save** – you can save the Auto Scan information as “Vehicle Record” so that you will not need to follow the vehicle selection process again on the same vehicle in later tests.

- ✧ **Quick Erase** – by selecting this option, the scan tool will erase all displaying DTCs and once again read the data and check the latest status of the system. If the system did not repair, the trouble codes will keep on displaying.
- ✧ **Display DTC** – this option allows you to read DTC definitions in the highlighted system. If more than one fault is detected in a system, the scan tool will display an option list for you to view different kind of DTCs or freeze frames.

Select one particular system and press **OK**, a Function Menu will appear.

The Function Menu options vary slightly for different vehicles. The Function Menu may include:

- 1) **ECU information** – provides the retrieved ECU information in detail. Selecting it opens an information screen.
- 2) **Read Codes** – displays detailed information of DTC records retrieved from the vehicle control module.
- 3) **Erase Codes** – erases DTC records and other data from the ECM.
- 4) **Live Data** – retrieves and displays live data and parameters from the vehicle's ECU.

 **NOTE**

Please refer to [OBD II Diagnostics](#) on page 71 for more details of **ECU Information, Read Codes, Clear Codes** and **Live Data** functions.

To exit the **Auto Scan** option, press **ESC** button. The scan tool will display a message "**Are you sure to quit?**" to ask for your confirmation. Select **Yes** to quit, and select **No** to cancel command.

Control Unit

Control Unit function will list down all the systems that might be available on the vehicle for you to select to test. Select a system to display the function menu and start testing.

System Menu	
1	ABS--Anti-Lock Brake / Traction Control Module
2	EPS--Electronic-Controlled Power Steering
3	PCM--Powertrain Control Module
4	TCM--Transmission Control Module
5	RCM--Restraint Control Module

Figure 4-2 Sample Control Unit Screen

NOTE

The actual systems displayed in the **System Menu** screen may be different from [Figure 4-2](#) due to various vehicle configurations

When a specific system is selected, press **OK** to open the **Function Menu** as displayed in Auto Scan and continue.

Vehicle Information

This function retrieves and displays the specific information for the tested control unit, including unit type, version numbers and other specifications for your review.

5 Service

The MaxiDiag® MD808/MD808 Pro provide **Oil Reset**, **EPB**, **SAS**, **DPF** and **BMS** functions for most modern vehicles on the road today. Select the **Service** function from the Main Menu to access the five special functions.

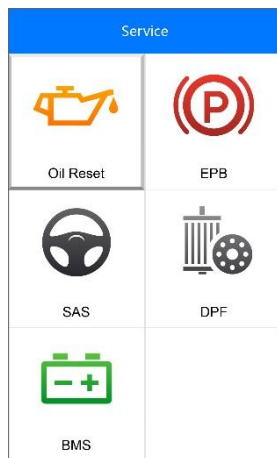


Figure 5-1 Sample Service Functions Screen

Oil 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.

! 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.

Reset Operation

Select **Oil Reset** icon on the Service screen ([Figure 5-1](#)) 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) Select **Ford** from the vehicle make screen and press **OK**.
- 2) Select the right options for your vehicle step by step according to each screen that appears until the vehicle information is identified.
- 3) After entering the vehicle information, the scan tool will display a manual reset message, press **OK** to continue.
- 4) Follow the instructions to reset the service manually.
- 5) Press **ESC** 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 [Product Troubleshooting](#) on page 15 for details.

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

- 1) Select **Peugeot** from the vehicle make screen and press **OK**.
- 2) Select the right options for your vehicle step by step according to each screen that appears until the vehicle information is identified.

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

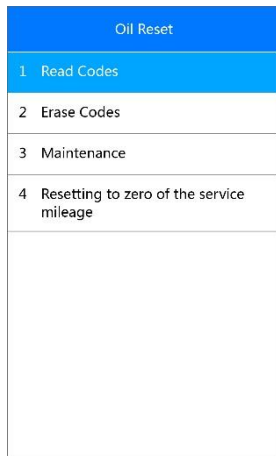


Figure 5-2 Sample Auto Reset Screen

Read Codes

Please refer to [Read Codes](#) on page 71 for details.

Erase Codes

Please refer to [Erase Codes](#) on page 72 for details.

Maintenance

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.

Maintenance		
Period before servicing	3	Month(s)
Maintenance limit	22246	Miles
First service threshold	Another country	
Help		Config.

Figure 5-3 Sample Maintenance Screen

Press **Config.** to enter the edit screen of this table.

Maintenance		
Period before servicing (Month(s))	3	...
Maintenance limit (km)	35800	...
First service threshold	Another country	▼
Finish	Edit	Esc

Figure 5-4 Sample Maintenance Edit Screen

For **Period before Servicing (Month(s))** or **Maintenance limit**, press **Edit** to open a soft keyboard to facilitate your input.

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.

[Edit]: Press this key to edit the value of each field.

[Esc]: Press this key to exit.

Press **Yes** to save the data and continue.

NOTE

The data you input should be within the reasonable range, which is defined by the preset values in the ECU. If the input data is out of range, the tool will display a warning message of "Input Overflow!"

For the **First service threshold**, there are two choices. Select the correct one and press **OK** to save the change.

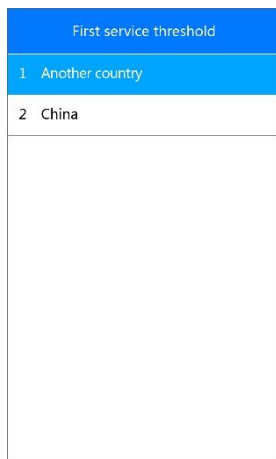


Figure 5-5 Sample First Service Threshold Screen

When the configuration is completed, press **Finish** on the bottom of the screen to continue.

EPB

This electric parking brake (EPB) function has a multitude of uses to maintain the electronic braking systems safely and effectively.

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.

EPB Functions

Take **BMW** as an example

1. Select **EPB** icon on the Service screen (*Figure 5-1*), choose **BMW** from the vehicle make screen and select the correct vehicle model to enter the **Parking Brake** menu.

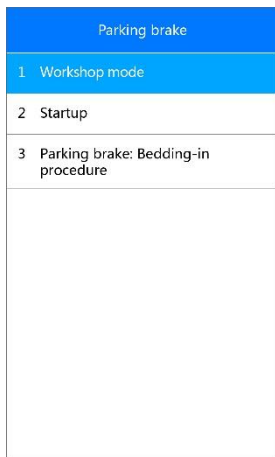


Figure 5-6 Sample EPB Service Screen

2. A screen shows as below, these three functions enable you to calibrate the parking brake after replacement.

Workshop Mode

This function provides calibration operations which should be performed after you make some changes on the EPB system.

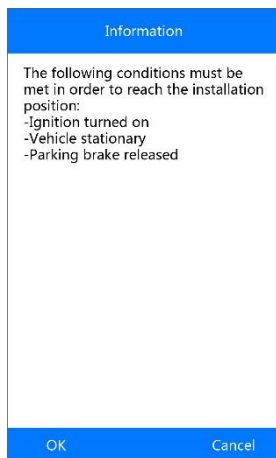


Figure 5-7 Sample Workshop Mode Screen

Follow the instructions on the screen to conduct the operation, when the calibration is successfully complete, a “Service function finished” message will appear on the screen. Press **OK** to exit.

Startup

Select **Startup** and follow the on-screen instructions to perform a series of operations to start the brake pad after replacement.

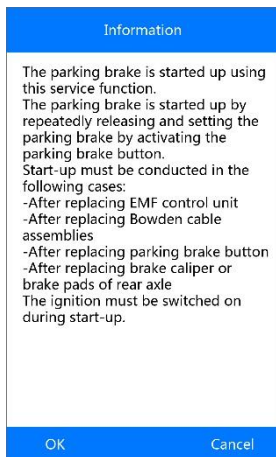


Figure 5-8 Sample Startup Screen

When the operation is successfully complete, a “Service function finished” message will appear on the screen. Press **OK** to exit.

Parking Brake: Bedding-in Procedure

If the brake discs of the brake pads are replaced, this function should always be carried out to improve the friction values.

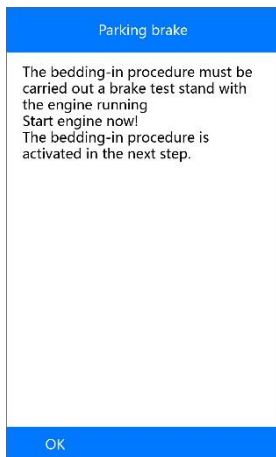


Figure 5-9 Sample Bedding-in Procedure

Follow the on-screen instructions to perform this function, when the operation is successfully complete, a "Service function finished" message will appear on the screen. Press **OK** to exit.

SAS

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

1. 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.
 2. Before starting procedure, make sure vehicle has ESC. Look for button on dash.
-

Take **Toyota** as an example.

- 1) 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%.

- 2) 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.
- 3) Turn the ignition off.
- 4) Locate the vehicle’s 16-pin Data Link Connector (DLC).
- 5) Plug the scan tool cable connector into the vehicle’s DLC.
- 6) Turn the ignition on but do not start the engine.
- 7) Turn on the scan tool and wait for the **Main Screen** to appear.
- 8) Use the **UP/DOWN** scroll button and **LEFT/RIGHT** scroll button to select **Service** in the Main Screen (*Figure 3-2*), and then select SAS from the Service menu.
- 9) Wait for a series of vehicle identification screens appears 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. Repeat this behavior until the vehicle is completely identified.
- 10) Use the **UP/DOWN** scroll button to select **VGRS** in the menu. The screen displays as below.

Function Menu	
1	Read Codes
2	Erase Codes
3	Freeze Frame Data
4	Live Data
5	Utility

Figure 5-10 Sample SAS Function Menu

Read Codes

Please refer to [Read Codes](#) on page 71 for details.

Erase Codes

Please refer to [Erase Codes](#) on page 72 for details.

Freeze Frame Data

Please refer to [Freeze Frame](#) on page 73 for details.

Live Data

Please refer to [Live Data](#) on page 72 for details.

Utility

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

- 1) From the function menu ([Figure 5-10](#)) use the **UP/DOWN** scroll button to select **Utility** and press the **OK** button. The scan tool displays function menu as below.



Figure 5-11 Sample Utility Screen

Steering Angle Adjust

- 1) Select **Steering Angle Adjust** from the utility function menu 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. Otherwise, it will display a message to remind user of a problem. After you exit the diagnosis program, please repair the problem immediately.

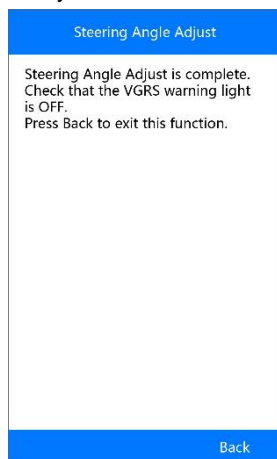


Figure 5-12 Sample Steering Angle Adjust Completed Screen

Records Clear

- 1) Select **Records Clear** from the utility function menu and press the **OK** button.
- 2) The scan tool will display a list of records.

Records Clear	
Motor Overheat Record	Not Table Data
Motor Lo Power Record	Not Table Data
Motor Overload Record	Not Table Data

Clr. History

Figure 5-13 Sample Records Screen

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

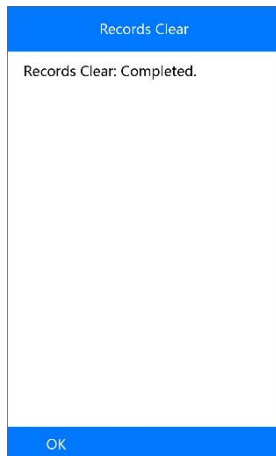


Figure 5-14 Sample Records Clear Completed Screen

Counter Clear

- 1) Select **Counter Clear** from the utility function menu and press the **OK** button.
- 2) The tool will display a prerequisite message as below. Select **Yes** to continue or **No** to exit.

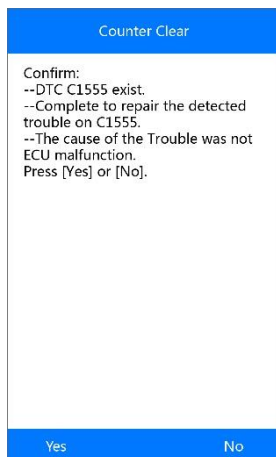


Figure 5-15 Sample Counter Clear Screen

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

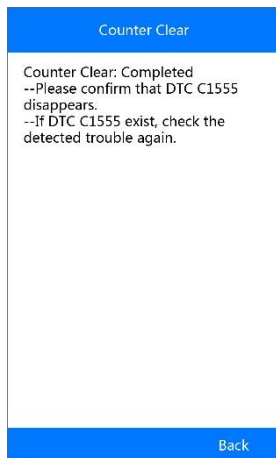


Figure 5-16 Sample Counter Clear Completed Screen

DPF

The DPF function allows you to carry out numerous functions on the Diesel Particulate Filter system without having to send your car to a main dealer. The tool will manage DPF regeneration, DPF component replacement teach-in and DPF teach-in after replacing the engine control unit.

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 load and high speed. In order for regeneration to take place, a prolonged high exhaust temperature must be obtained.

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

1. The DPF will not regenerate if the engine management light is on, or there is a faulty EGR valve.
 2. The ECU must be re-adapted when replacing the DPF and when topping up the fuel additive Eolys.
 3. 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.

Select **DPF** icon on the Service screen (*Figure 5-1*), choose **BMW** from the vehicle make screen and select the correct vehicle model to enter the function menu.

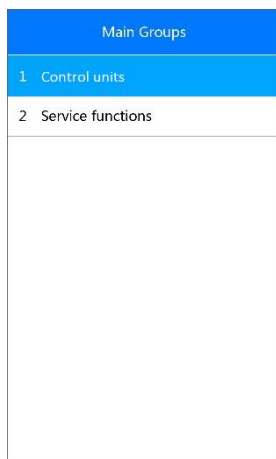


Figure 5-17 Sample DPF Functions Screen

DPF Diagnostics

Select **Control Unites** from the DPF functions screen (*Figure 5-17*) to access the Function Menu.

Function Menu	
1	Identification A
2	Read Codes
3	Erase Codes
4	Live Data

Figure 5-18 Sample DPF Diagnostics Menu

Identification A

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

Identification A	
Part number basic control module	7801710
Hardware version index	00
Variant index	19537
Diagnosis index	33
Coding index	4
Date of manufacture	22.07.2006
Save	Esc

Figure 5-19 Sample Identification A Screen

Press **Save** to save the information for later review or press **ESC** to return to the previous menu.

Read Codes

Please refer to [Read Codes](#) on page 71 for details.

Erase Codes

Please refer to [Erase Codes](#) on page 72 for details.

Live Data

Please refer to [Live Data](#) on page 72 for details.

DPF Service Functions

Select Service Functions in the menu ([Figure 5-18](#)). The screen displays as below.

Motor Electronics	
1	Starting Basic Injection Quantity
2	Injection rate
3	Injector rate adjustment
4	Particle filter regeneration
5	Particle filter test

Figure 5-20 Sample DPF Service Functions

Starting Basic Inspection Quantity

This function enables you to start fuel delivery matching.

- 1) Select **Starting Basic Inspection Quantity** from the service functions menu ([Figure 5-20](#)) and press **OK**.
- 2) The tool communicates with the vehicle and reads the fault codes memory. Follow the on-screen instructions to finish this procedure.

- 3) The tool will display a function list menu as below. Press the corresponding number button to perform the desired function.

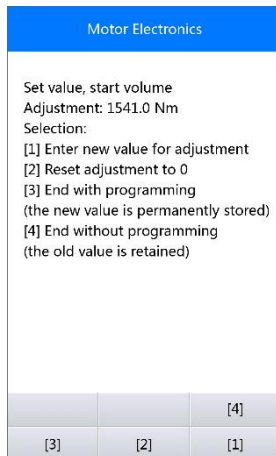


Figure 5-21 Sample Starting Basic Inspection Quantity Functions

[1] Enter New Value for Adjustment

From the **Starting Basic Inspection Quantity** menu ([Figure 5-21](#)), select **[1]** and press **OK**. The screen displays as below.

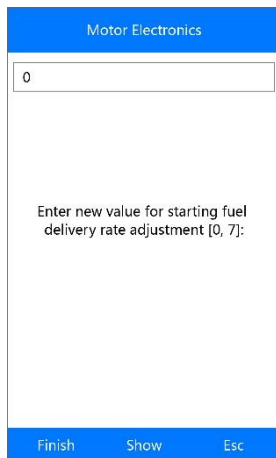


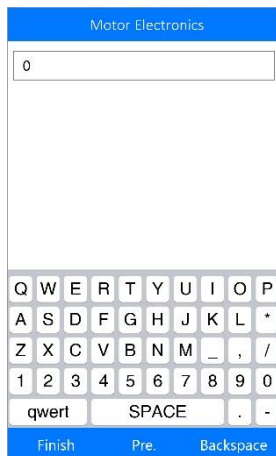
Figure 5-22 Sample Enter New Value Screen

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.



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 **Yes** to save the data and continue.

NOTE

The data you input should 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

Once the **[2]** is pressed, the tool will automatically reset the value to zero.

[3]/[4] Store Data and Exit

When the fuel delivery rate adjustment is completed, select **[3]** and **OK** to store the new value in the control units; or, select **[4]** and **OK** to retain the old value.

Injection Rate

This function is used to adjust the injection volume.

- 1) Select **Injection Rate** from the service functions menu (*Figure 5-20*) and press **OK**.
- 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. Press the corresponding number button to perform the desired function.

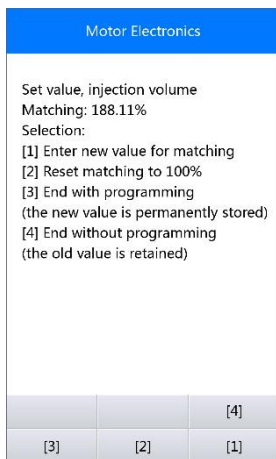


Figure 5-23 Sample Injection Rate Screen

[1] Enter New Value for Adjustment

From the **Injection Rate** menu (*Figure 5-21*), select **[1]** and press **OK**. The screen displays as below.

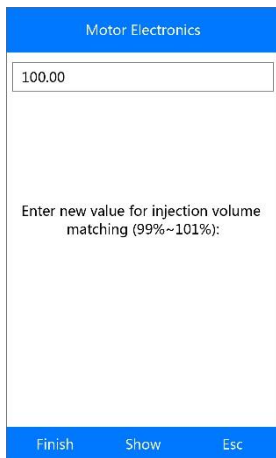


Figure 5-24 Sample Enter New Value Screen

Refer to *Starting Basic Inspection Quantity* on page 37 for how to enter a new value with soft keyboard.

NOTE

The data you input should 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%

Once the **[2]** is pressed, the tool will automatically reset the value to 100%.

[3]/[4] Store Data and Exit

When the injection volume adjustment is completed, select **[3]** and **OK** to store the new value in the control units; or, select **[4]** and **OK** to retain the old value.

Injector Rate Adjustment

This function is used to adjust the injector rate for individual cylinders.

- 1) Select **Injection rate adjustment** from the service functions menu (*Figure 5-20*) and press **OK**.
- 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. Press the corresponding number button to enter new value for each cylinder.

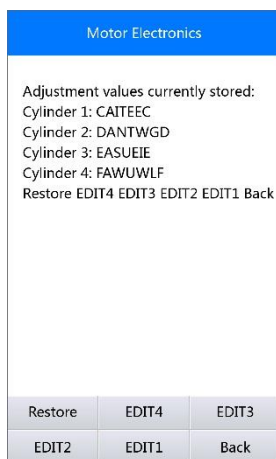


Figure 5-25 Sample Injection Rate Adjustment Screen

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

A. Enter New Value for Cylinder

From the **Injection Rate Adjustment** menu (*Figure 5-21*), select one option and press **OK**. The screen displays as below. Input a new value for a cylinder injector.

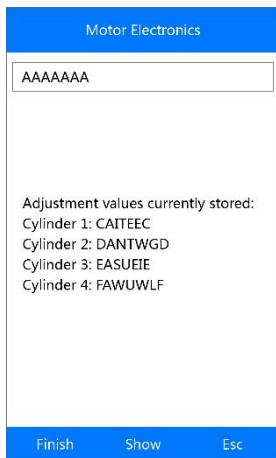


Figure 5-26 Sample Enter New Value for Cylinder

Refer to [Starting Basic Inspection Quantity](#) on page 37 for how to enter a new value with soft keyboard.

B. Restore the Old Value

Select **[Restore]** and **OK** to retain the old value.

Select **[Back]** and **OK** to return to the previous menu.

Particle Filter Regeneration

This function is used to perform the particle filter regeneration.

- 1) Select **Particle filter regeneration** from the service functions menu ([Figure 5-20](#)) and press **OK**.
- 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.
- 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.

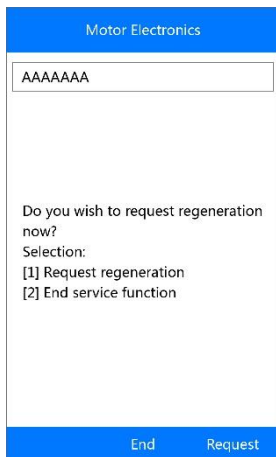


Figure 5-27 Sample Regeneration Confirmation Screen

- 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 until the tool reads off the regeneration status as below.

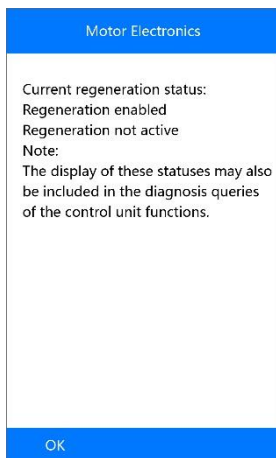


Figure 5-28 Sample Regeneration Status Screen

- 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.

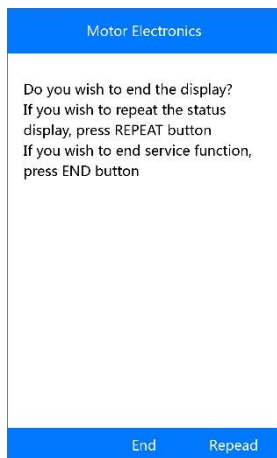


Figure 5-29 Sample Repeat Screen

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.

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.

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) Select **Particle filter test** and press the **OK** button from the service functions menu ([Figure 5-20](#)).
- 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.

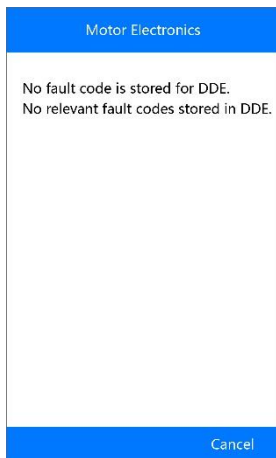


Figure 5-30 Sample No Code Screen

- 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.

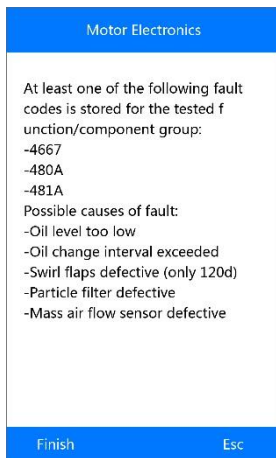


Figure 5-31 Sample Codes Screen

- 4) The tool shows a list of particle filter tests as below. Select the corresponding number button to perform the desired test.

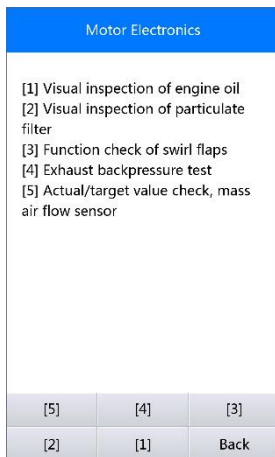


Figure 5-32 Sample Particle Filter Tests

[1] Visual Inspection of Engine Oil

- 1) Select [1] and **OK** button from the particle filter test menu ([Figure 5-32](#)).

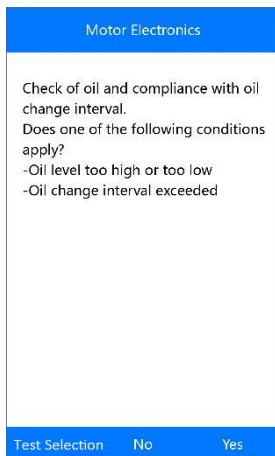


Figure 5-33 Sample Visual Inspection of Engine Oil

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

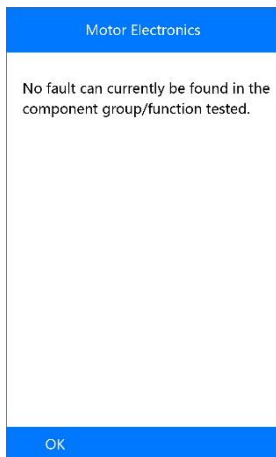


Figure 5-34 Sample No Codes Screen

- 3) 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.

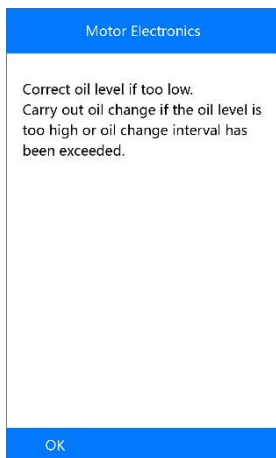


Figure 5-35 Sample Visual Inspection Result

- 4) Or, select **Test Selection** to return to the previous menu.

[2] Visual Inspection of Particulate Filter

- 1) Select **[2]** and **OK** button from the particle filter test menu ([Figure 5-32](#)).

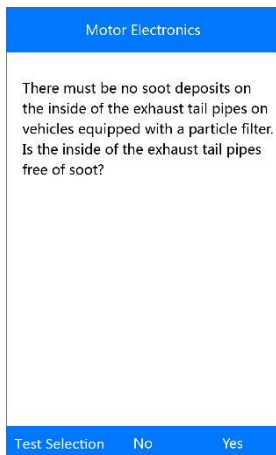


Figure 5-36 Sample Confirmation

- 2) Select **Yes** if you visually find no soot on the inside of the exhaust tail pipes. Press **OK** button to return to previous menu.
- 3) 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.

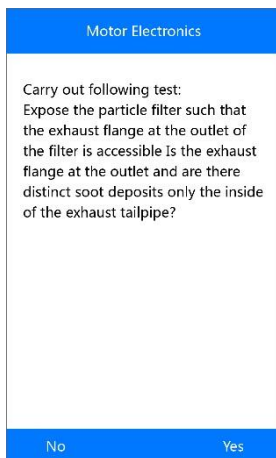


Figure 5-37 Sample Test Screen

- 4) Or, select **Test Selection** to return to the previous menu.

[3] Function Check of Swirl Flaps

- 1) Select **[3]** and **OK** button from the particle filter test menu (*Figure 5-32*).

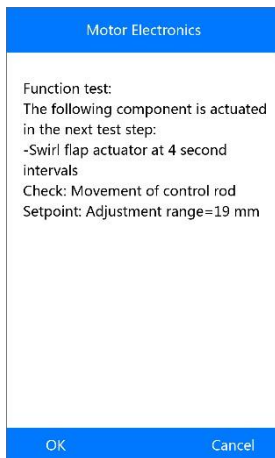


Figure 5-38 Sample Swirl Flaps Check Info. Screen

- 2) Select **OK** to activate swirl flaps and the next screen displays. Press **OK** button to end the activation and exit.
- 3) Or, select **Cancel** to return to the previous menu.

[4] Exhaust Backpressure Test

- 1) Select **[4]** and **OK** button from the particle filter test menu (*Figure 5-32*).

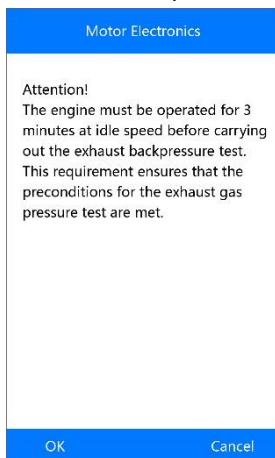


Figure 5-39 Sample Exhaust Backpressure Test Attention

- 2) Press **OK** to proceed and or select **Cancel** to return to the previous

menu.

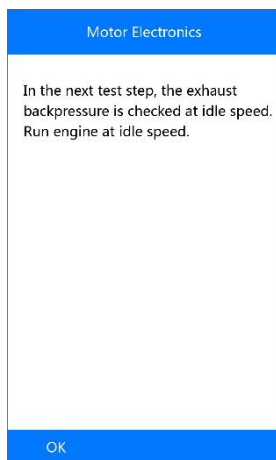


Figure 5-40 Sample Next Step

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

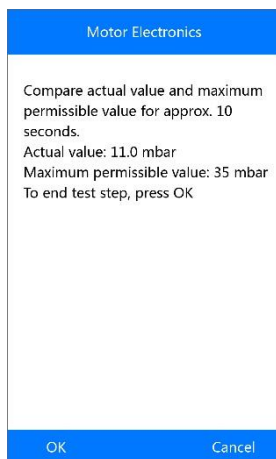


Figure 5-41 Sample Exhaust Backpressure at Idle

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

- 4) 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. Select **OK** to continue the test or **Cancel** to return to previous menu.

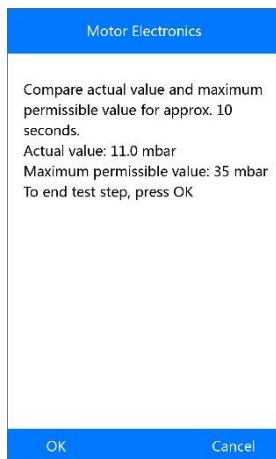


Figure 5-42 Sample Exhaust Backpressure at 2000 RPM

- If the engine is not running at 2000 rpm, the tool will display a warning message. Select **OK** to repeat the test or select **Cancel** to exit.
- 5) 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. Select **OK** to end the test or **Cancel** to return to previous menu.
- If the engine is not running at cut-off speed, the tool will display a warning message. Select **OK** to repeat the test.
- 6) The tool will submit a summary report for your confirmation.

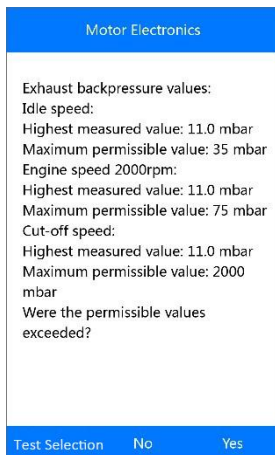


Figure 5-43 Sample Summary

- 7) 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.

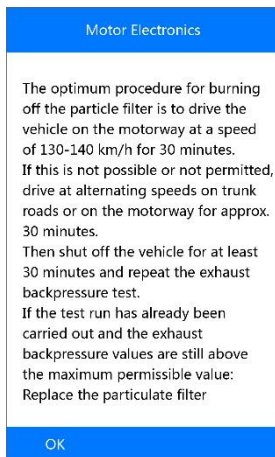


Figure 5-44 Sample Instruction Message

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

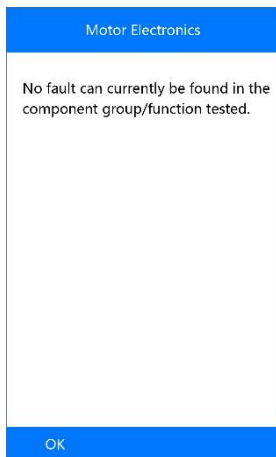


Figure 5-45 Sample No Fault Screen

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

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

1) Select **[5]** and **OK** button from the particle filter test menu (*Figure 5-32*).

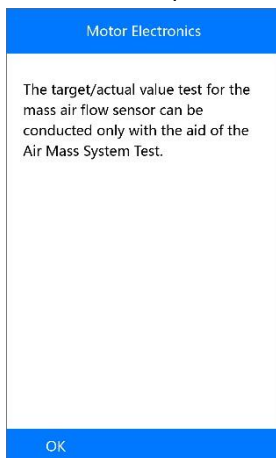


Figure 5-46 Sample Test Screen

2) Press **OK** to return to the previous screen.

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.

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 may 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.

Battery

The Battery function allows the scan tool to evaluate the state of the battery charge and register the battery replacement.

Take **BMW** as an example:

- 1) Select **BMS** icon on the **Service** screen (*Figure 5-1*), choose **BMW** from the vehicle make screen and select the correct vehicle model to enter the **Power supply (Battery)** menu.

Power supply(Battery)	
1	Battery
2	Close-circuit current
3	Activate rest state
4	Charging the battery via diagnostic socket
5	Auxiliary battery (24 V EPS): Register battery replacement

Figure 5-47 Sample BMS Functions

- 2) Select **Battery** option from the previous screen, the next screen displays as below.

Power supply(Battery)	
1	Evaluate state of battery charge
2	Register battery replacement

Figure 5-48 Sample Battery Functions

Evaluate State of Battery Charge

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

Select **Evaluate state of battery charge** in the Battery menu (*Figure 5-48*). A screen displays as below:

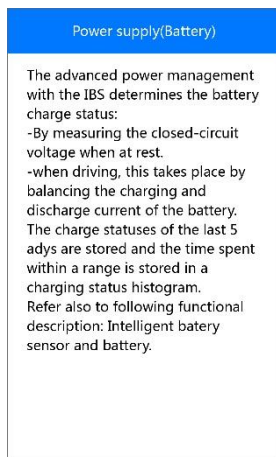


Figure 5-49 Sample Evaluate State of Battery Charge Notes

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

- 1) Press **OK** to open the next screen, select **[1]** to view the charge state of last 5 days. Or press **OK** to exit.

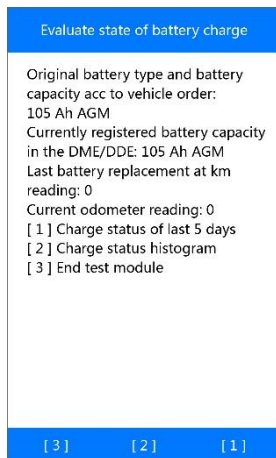


Figure 5-50 Sample Evaluate State of Battery Charge Functions

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

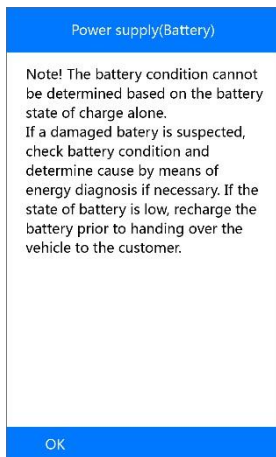


Figure 5-51 Sample Notes of Battery Charge Status

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

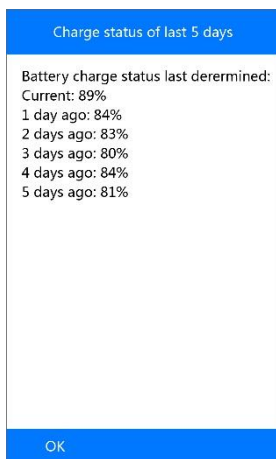


Figure 5-52 Sample Battery Charge Status of Last 5 Days

- **To display the battery charge status histogram:**
- 1) Press **[2]** to display the battery charge status histogram.
 - 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.

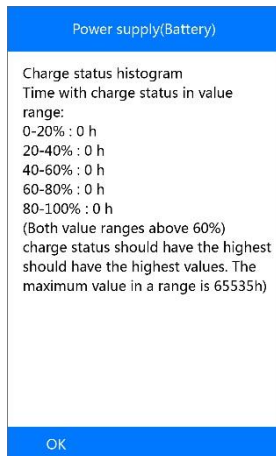


Figure 5-53 Sample Charge Status Histogram

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 (*Figure 5-48*).
- 2) Follow the on-screen instructions and press **[1]** to display the battery history.

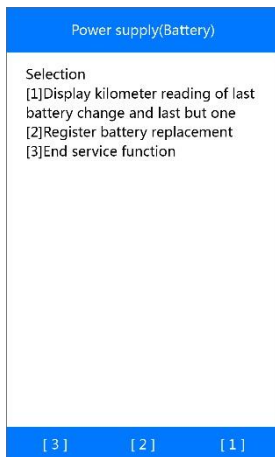


Figure 5-54 Sample Register Battery Replacement screen

- 3) Read carefully the information on the display and press **OK** to continue.

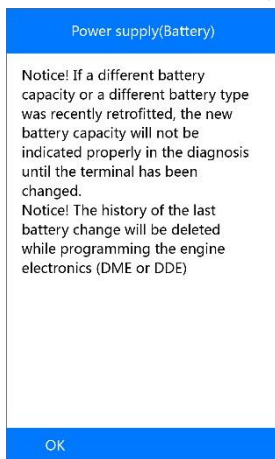


Figure 5-55 Sample Notes of Battery History

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

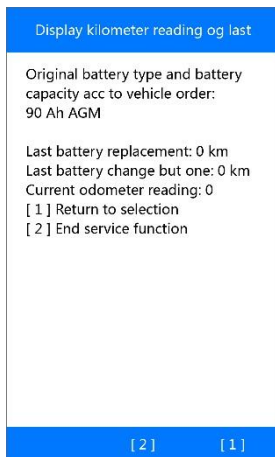


Figure 5-56 Sample Battery Capacity Screen

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

➤ **To register the battery replacement:**

- 1) From *Figure 5-54*, press **[2]** to continue.

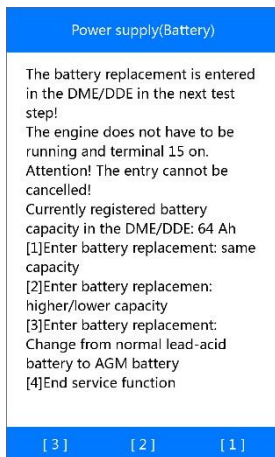


Figure 5-57 Sample Battery Replacement Registration

- 2) Press the corresponding function buttons and follow the on-screen instructions to perform the desired registration functions.

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.

Evaluate Close-circuit Current Monitoring

- 1) Use the **UP/DOWN** scroll button to select **Close-circuit current** option from the **Power supply (Battery)** menu (*Figure 5-47*) and press the **OK** button.
- 2) Select **Evaluate close-circuit current monitoring** button to display the last 24 close-circuit current values.

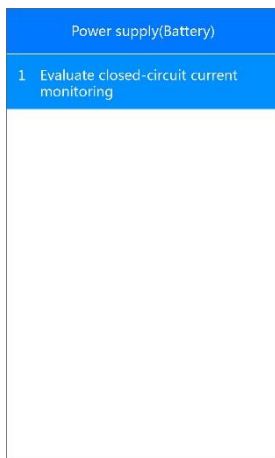


Figure 5-58 Sample Evaluate Close-circuit Current Monitoring Screen

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

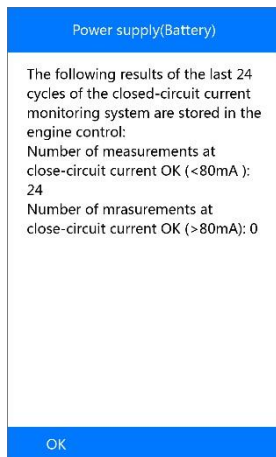


Figure 5-59 Sample Close-circuit Current Info. Screen

Activate Rest State

Power Down Command

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

- 1) Select **Activate rest state** option from the **Power supply (Battery)** menu ([Figure 5-47](#)).
- 2) Select the **Power down command** on the next screen to shut down electronic control units or select **ESC** to exit without change.

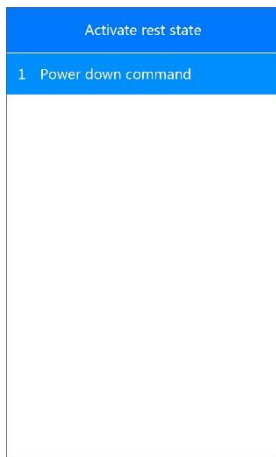


Figure 5-60 Sample Power Down Command Screen

- 3) A screen will appear for your confirmation, press **Yes** to send the Power Down Command, or press **No** to exit this function.

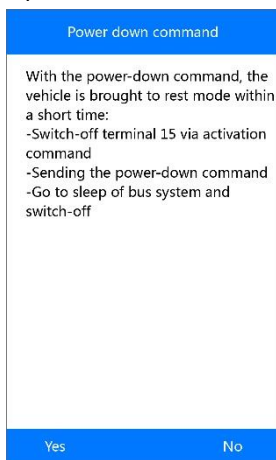


Figure 5-61 Sample Power Down Command Confirmation Screen

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

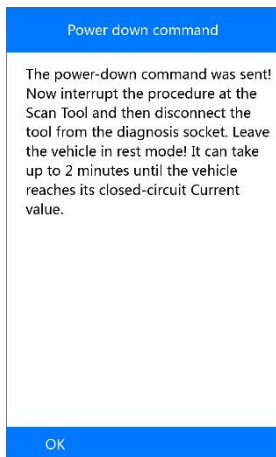


Figure 5-62 Sample Command Sent Screen

- 5) Press OK to end the service function.

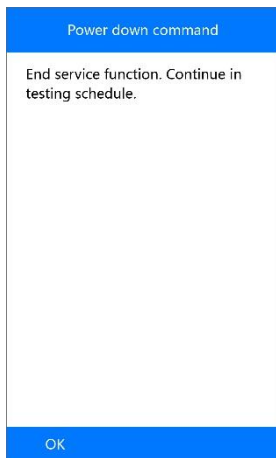


Figure 5-63 Sample Command Completed Screen

Charging Battery via Diagnostic Socket

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

- 1) Use the **UP/DOWN** scroll button to select **Charging the battery via diagnostic socket** option from the **Power supply (Battery)** menu (*Figure 5-47*) and press the **OK** button.
- 2) Read carefully the instructions on the screen and press the **OK** button to continue.
- 3) Press **[1]** and press the **OK** button to delete the transport mode of the control unit.

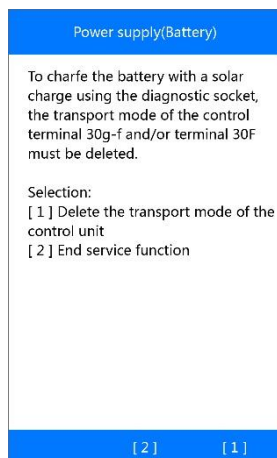


Figure 5-64 Sample Charging Battery Functions

- 4) After deleting the transport mode, an "Activation Successful" message will appear on the screen, press the **OK** button to end service function.

Auxiliary Battery

This function is used for 24V EPS auxiliary battery history displaying and auxiliary battery replacement registration.

1. Use the **UP/DOWN** scroll button to select **Auxiliary battery (24V EPS): Register battery replacement** option from the Power supply (Battery) menu (*Figure 5-47*) and press the **OK** button.
 2. Read the instructions on the screen with the **UP/DOWN** scroll button.
- **To display the battery history:**
- 1) Press **[1]** to display the history of the last auxiliary battery replacement.

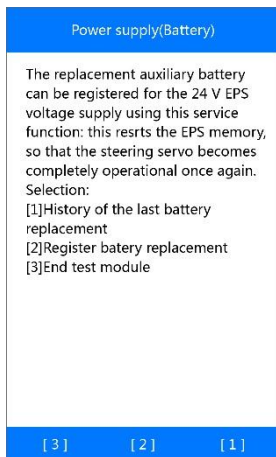


Figure 5-65 Sample Auxiliary Battery Functions

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

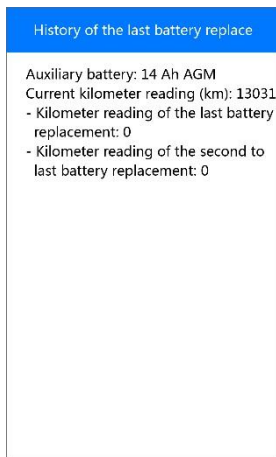


Figure 5-66 Sample History of the Last Battery Replacement

- **To register the battery replacement:**
 - 1) Press **[2]** to register the auxiliary battery replacement (*Figure 5-65*).
 - 2) Read carefully the Help information on the screen and press the **OK** button to continue.
 - 3) Press **[Yes]** if the newly installed battery is an original BMW component:

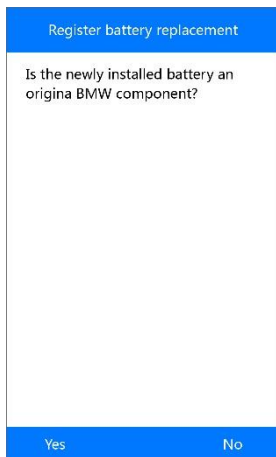


Figure 5-67 Sample Battery Replacement Confirmation Screen

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

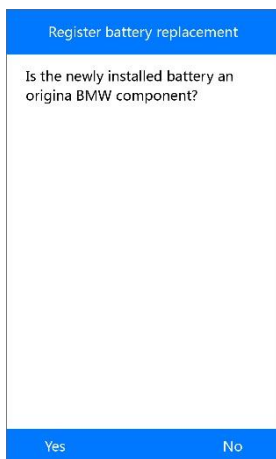


Figure 5-68 Sample Data Matrix Code Confirmation Screen

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

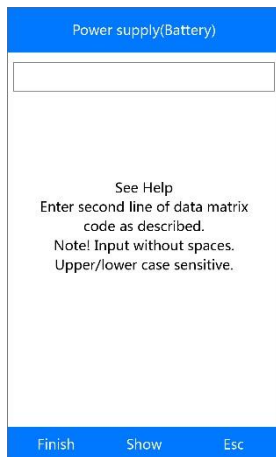


Figure 5-69 Sample Data Matrix Code Entering Screen

Refer to [Starting Basic Inspection Quantity](#) on page 37 for how to enter a new value with soft keyboard.

If the entered code beyond the limited character length, an “Input Overflow!” warning message will appear on the screen.

- 6) Press **[Finish]** to complete input and if the information on the screen is correct, press **[Yes]** to continue.
- 7) The tool will begin the registration of the battery replacement.
- 8) When the auxiliary battery replacement has been registered successfully in the EPS, the screen will display as below:

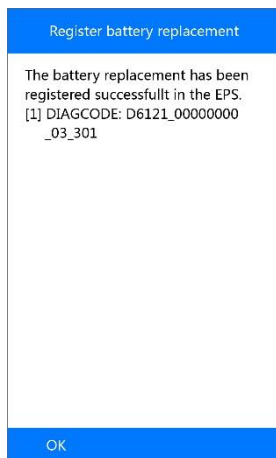


Figure 5-70 Sample Registration Successful Screen

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

NOTE

If the registration is failed, press the OK button and try again.

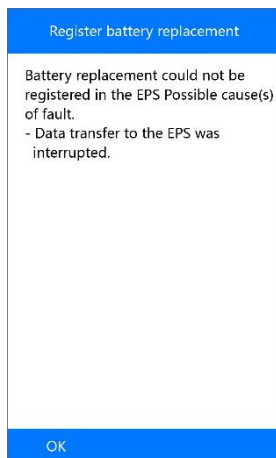


Figure 5-71 Sample Registration Failed Screen

6 OBD II Diagnostics

The OBD II Diagnostics function is a fast-access option that allows you to carry out a quick test on the drive train systems 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 Power-train Control Module [PCM] and Transmission Control Module [TCM].

! IMPORTANT

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

System Status

Select this function to display the system status of the test vehicle, refer to the following description for the system status of the test vehicle.

- **OK** – indicates that the monitor being checked has completed its diagnostic testing.
- **INC** – indicates that the monitor being checked has not completed its diagnostic testing.
- **N/A** – indicates that the monitor is not supported on that vehicle.

Read Codes

Read Codes can be done with the key on engine off (KOEO) or with the key on engine running (KOER). This function is used to read the detailed information of a particular diagnostic trouble code for technicians to better solve the problem.

➤ To read codes

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

- 2) View DTCs and their definitions on screen.
- 3) 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 **OK** to confirm.
 - If the manufacturer of your vehicle is not listed, use the **UP/DOWN** scroll button to select **Other** and press **OK**.

Erase Codes

Erase Codes is performed with key on engine off (KOEO). This function is used to delete diagnostic trouble code when the fault the caused the specific DTC is fixed.

➤ To erase codes

- 1) Use the **UP/DOWN** scroll buttons to select **Erase Codes** from **Diagnostics Menu** and press **OK**.
- 2) After you have pressed **OK** button, a message will come up asking you to check the ignition and engine status.
 - If you do not want to proceed with erasing codes, press **ESC** button or select **NO** to exit and return to the previous screen.
 - If you press **Yes** or **OK**, a warning message will come up asking your confirmation. Press the **OK** button to confirm.
 - If the codes are cleared successfully, an “Erase Done!” confirmation message will appear on the display.
 - If the codes are not cleared, then an “Erase Failure. Turn Key on with Engine off!” message appears.
- 3) Press any button to return to **Diagnostic Menu**.

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).

- If the “**One Graphic**” on the bottom appears when a PID is highlighted, graphic information is available. Select **One Graphic** to view PID graph. PID name, current value, maximum and minimum values are also displayed on the screen.
- If a “**Two Graphics**” button appears on the bottom of the screen that means this selected PID can be displayed with another related PID together on the same screen for better comparison.
- When two PIDs are displayed as two parallel graphs, a “**Merge Graph**” option will appear on the bottom, and that means the two graphs can be merged into one graph for better comparison.
 - 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**.

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 Micro SD card and then use the **Playback** function to view the saved files.

Select **Save** on the bottom to record the live data displaying. The scan tool will start timing to record retrieved live data and PID graphs. Text and Graphics data can both be recorded.

NOTE

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

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.

I/M Readiness

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.

NOTE

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.

O2 Monitor Test

OBD II regulations set by SAE require the relevant vehicle monitors 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 section [On-Board Monitor Test](#).

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 is used for non-CAN-equipped vehicles to retrieve and display test results for emission-related power train components and systems that are not continuously monitored. This function is also used for CAN-equipped vehicles to retrieve and display test results for emission-related power train components and systems that are continuously and non-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.

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.

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.

Modules Present

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

DTC Lookup

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

7 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 Micro SD card.

Review Data

- 1) Use the **LEFT/RIGHT** scroll button to select **Playback** from Main Screen (*Figure 3-2*), and press **OK**. Wait for the **Scan** screen to appear.

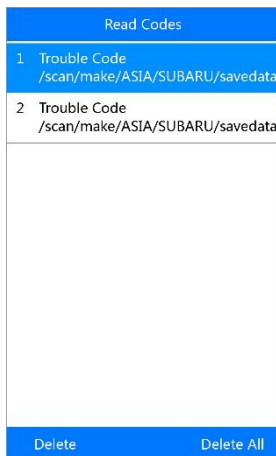


Figure 7-1 Sample Scan Screen

- 2) Use the **UP/DOWN** scroll button to select the desired item from **Scan** screen, and press **OK**.
 - If no data from previously tested vehicle is recorded, a message **"No data available!"** shows on the screen.
 - The data recorded from each icon on the Main Screen will be saved under the responded file holder.

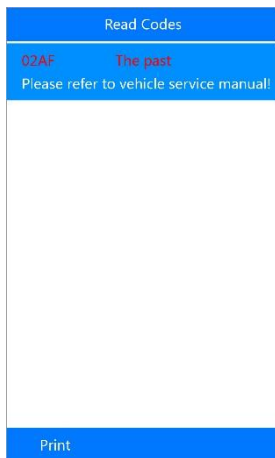


Figure 7-2 Sample Data Review Screen

Delete Data

By selecting **Delete** on the **Scan** 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.

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 section [Print Data](#) on page 82.

8 Software Update

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

Register the Tool

User would update the scan tool **ONLY** after you had registered the tool on our website. Then you could download software, update online, retrieve information and get warranty service.

NOTE

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

1. Visit the website.
2. If you already have an Autel account, Sign In with your account ID and password.
3. If you are a new member to Autel, click on the **Create Autel ID** button on the left side to create an ID.
4. Enter the required information in the input fields, and click the **Get Verification Code** button to get a verification code for email validation.
5. The online system will automatically send a verification code to the registered email address. Input the code in the Verification Code field and complete other required fields. Read through Autel's Terms and Conditions and click on Agree, and then click **Create Autel ID** at the bottom. A product registration screen will display.
6. The device's serial number and password is located in the [About](#) section of the System Setup application on the tool.
7. Select your product model, enter the product serial number and password on the Product Registration screen, and click **Submit** to complete the registration procedure.

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.

There are two ways to update your tool.

1. Remove the Micro SD card from the device and connect it with a Mac-based or Windows-based computer for updating.
2. Connect your tool with a Windows-based computer using the supplied USB cable and select Update on the Main Menu to enter Update Mode.

NOTE

Updating with USB cable is not available on Mac for the present.

The update procedures for the above two update methods are the same. Follow the update procedure to finish updating.

1. Download the **Maxi PC Suite** and install on your Mac-based or Windows-based PC.
2. Run the **Maxi PC Suite**. Wait for the Log In window to pop up.

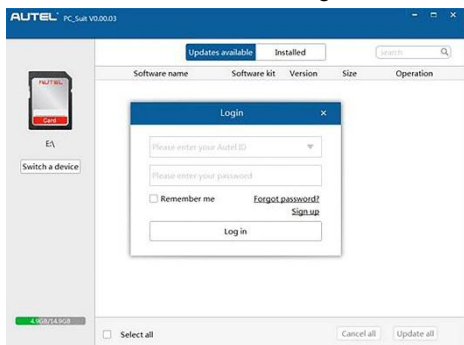


Figure 8-1 Sample Log In Window

3. Enter your Autel ID and password and wait for the Update window to display. If you forget your password, you may click the [**Forget Password?**] to link to our website and find your password back. Or you may click **Sign up** to create an Autel ID to continue.
4. Select the product type and serial number, click **OK** to continue.
5. In the **Update** window, select the items you want to install. Usually, you should install all available updates.

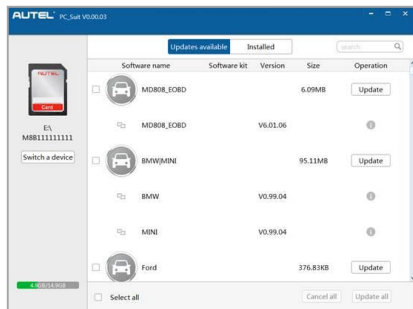


Figure 8-2 Sample Update Window

Generally, there are two ways to update programs:

Batch Update

1. Select the programs that you would update by clicking on the check boxes next to those items. Then click the **Update All** button on the right bottom of screen. Click the **Clear All** button will reselect the items you want to update.
2. Or, click on the **Select All** checkbox on the left bottom of screen and all updatable items will be selected automatically. Then click the **Update All** button on the right side of screen.
3. When the downloading is completed, the downloaded programs will be installed automatically. The new version will replace the old version.

Single Update

1. Find out the desired updating item and click the **Update** button in the same line.
2. 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:

1. Click on the **Installed** tag entry and the page will show the list of programs installed.
2. 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 **Uninstall All** button on the right bottom of screen.
 - ✧ **Single delete:** Click the **Uninstall** button in the line of your would-be-deleted program.
3. A window asking “**Are you sure to delete the software?**” will pop up for your confirmation.

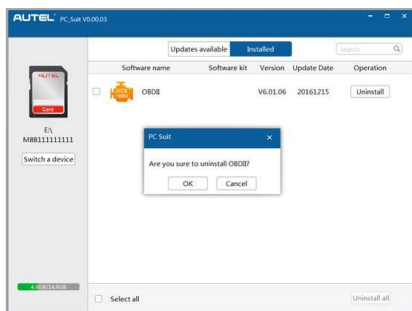


Figure 8-3 Sample Delete Window

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

In the search box on the right top corner of the screen, you can enter any words to search the software you desired, and this function works for both Update Available column and Installed column.

Print Data

The **Print Data** function allows printing out DTC data recorded by the service tool by connecting the scan tool to a Windows-based PC or laptop with the USB cable supplied.

1. Download the **Maxi PC Suite** and install. You can use a Windows-based computer to download suitable versions from the website and proceed.
2. Connect the scanner to computer with the USB cable supplied.
3. Run **Autel Printer** software on computer.

4. Select **Playback** function in Main Screen of the tool. In data menu screen, use the **UP/DOWN** scroll button to select the data you want to print. Wait for the reviewing window to display, and then select **Print** function. The selected file will be uploaded to your computer. For more detailed instructions, please refer to [Review Data](#) on page 77.
5. The **Printer** will display as below.

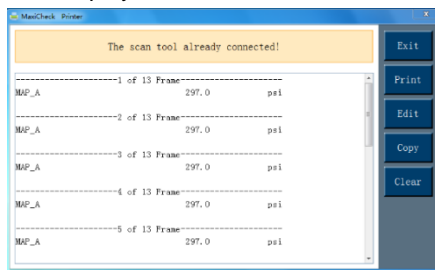


Figure 8-4 Sample Printer Screen

6. The selected data will display on the textbox. Select the appropriate function key on the right to execute one of the following operations:
 - **Print** – print all data in the textbox to a printer connected to your computer.
 - **Edit** – display an editable NOTEPAD window with recorded data.
 - **Copy** – copy data in the textbox to the clipboard.
 - **Clear** – delete data in the textbox.
 - **Exit** – quit the operation.

NOTE

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

9 Compliance Information

FCC COMPLIANCE

FCC ID: WQ8MD808-DIAG

This device complies with Part 15 of the FCC rules and Industry Canada's license-exempt RSSs. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

Cet appareil est conforme aux CNR exempts de licence d'Industrie Canada. Son fonctionnement est soumis aux deux conditions suivantes:

1. Ce dispositif ne peut causer des interférences; et
2. Ce dispositif doit accepter toute interférence, y compris les interférences qui peuvent causer un mauvais fonctionnement de l'appareil.

WARNING

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.

- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

RF WARNING STATEMENT

The device has been evaluated to meet general RF exposure requirement. The device can be used in portable exposure condition without restriction.

The term "IC" before the radio certification number only signifies that IC technical specifications were met.

RoHS COMPLIANCE

This device is declared to be in compliance with the European RoHS Directive 2011/65/EU.

CE COMPLIANCE

This product is declared to conform to the essential requirements of the following Directives and carries the CE mark accordingly:

EMC Directive 2014/30/EU

R&TTE Directive 1999/5/EC

Low Voltage Directive 2014/35/EU