

Safety Precautions and Warnings

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

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

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1 Using the Scan Tool

Tool Description

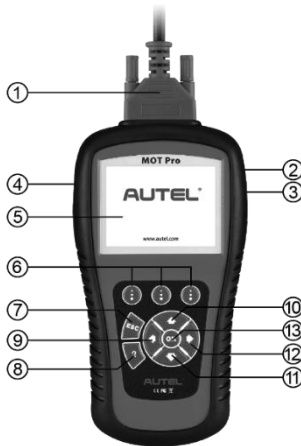






Figure 1-1

- 1) **CONNECTOR** – Connects the scan tool to the vehicle's Data Link Connector (DLC).
- 2) **EXTERNAL DC POWER PORT** – Connects the 12 volt power adapter to power the tool when disconnected from the vehicle.
- 3) **USB CONNECTOR** – Connects the scan tool to the PC for printing.
- 4) **SD CARD SLOT** – Holds the System SD card.
- 5) **LCD DISPLAY** – Indicates test results. TFT color display.
- 6) **FUNCTION BUTTON** – Corresponds with “buttons” on screen for executing commands.
- 7) **ESC BUTTON** – Cancels a selection (or action) from a menu or returns to the previous screen.
- 8) **HELP BUTTON** – Provides help information and Code Breaker function.
- 9) **LEFT SCROLL BUTTON** – When look up DTC definitions, moves to previous character and views additional information on previous

screens if DTC definition covers more than one screen; views previous screen or previous frames of recorded data. It is also used to view previous trouble code when viewing DTCs.

- 10)  **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.
- 11)  **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.
- 12)  **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.
- 13)  **OK BUTTON** – Confirms a selection (or action) from a menu.

Specifications

- 1) Display: 3.5" TFT color display (320 x 240 dpi)
- 2) Operating Temperature: 0°C to 60°C (32°F to 140°F)
- 3) Storage Temperature: -20°C to 70°C (-4°F to 158°F)
- 4) External Power: 12.0 to 18.0 V power provided via vehicle battery or adapter.
- 5) Dimensions:

Length	Width	Height
214.2 mm (8.43")	112.6 mm (4.43")	39 mm (1.54")
- 6) Weight: 0.28 kg (without wire) 0.484 kg (with wire)

Accessories Included

- 1) **User's Manual** – Instructions on tool operations.
- 2) **CD** – Includes user's manual, update software, etc.

- 3) **OBD II Cable** – Provides power to tool and communicates between tool and vehicle.
- 4) **USB Cable** – Used to upgrade the scan tool, and to print retrieved data.
- 5) **SD Card** – Contains the scan tool's operation software and applications.
- 6) **Carry Case** – A nylon 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.

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

During vehicle testing, power for the scan tool is usually provided through the vehicle cable connection. When the scan tool is not connected to a vehicle, the scan tool can be powered with an AC/DC external power adapter.

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

- 1) Connect the Cable to scan tool.
- 2) Find DLC on vehicle.
- *A plastic DLC cover may be found for some vehicles and you need to remove it before plugging the OBD II cable.*
- 3) Plug the cable to the vehicle's DLC.
- 4) Power up the scan tool, and wait for the Main Screen to appear.

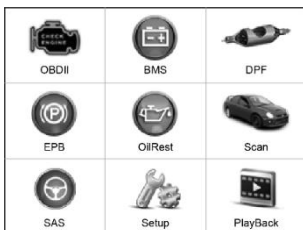


Figure 1-2

System Setup

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

- 1) **Language:** Selects the desired language.
 - 2) **Unit of Measure:** Sets the unit of measure to English or Metric.
 - 3) **Beep Set:** Turns on/off beep.
 - 4) **LCD Test:** Checks if the LCD display is working properly.
 - 5) **Key Test:** Checks if the keyboard is working properly.
 - 6) **About:** Provides information of the scan tool.
- *Settings of the unit will remain until change is made.*

To enter the Setup menu

Select **Setup** from the **Main Menu**, and press the **OK** button. Following the instructions to do adjustments and settings.

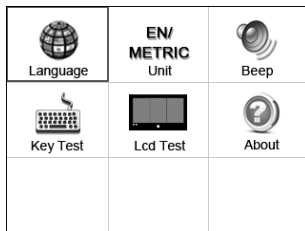


Figure 1-3

Language

- *English is the default language.*
- 1) Select **Language** from **System Setup** and press **OK**.
 - 2) Select the desired language and press **OK** to save your selection and return to previous screen.

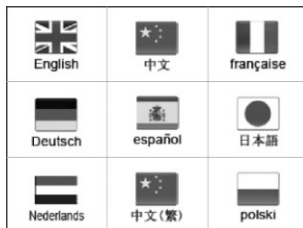


Figure 1-4

Unit of Measurement

- *Metric is the default measurement unit.*
- 1) Select **EN/METRIC unit** from **System Setup** screen and press **OK**.
 - 2) From **Unit of Measure** screen, select the desired unit of measurement.

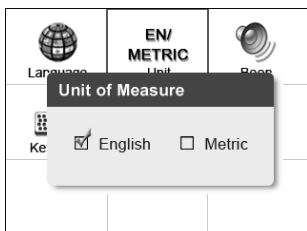


Figure 1-5

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

Beep

- *The default setting is Beep On.*
- 1) Select **Beep** from **System Setup** screen and press **OK**.
 - 2) Select ON or OFF to turn on/off the beep.

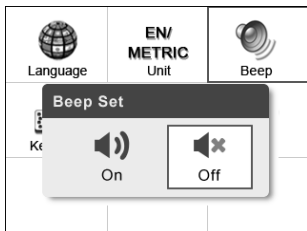


Figure 1-6

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

Key Test

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

- 1) Select **Key Test** from **System Setup** screen 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 to red. Otherwise, the key is not functioning properly.

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

LCD Test

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

- 1) Select **LCD Test** from **System Setup** screen and press **OK**.
- 2) Look for missing spots in the red, green, blue, black and white LCD display.
- 3) When completed, press the **ESC** button to exit.

About

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

- 1) Select **About** from **System Setup** screen and press **OK**; wait for the **About** screen to appear.
- 2) View tool information on screen. Press the **ESC** button to exit without saving.



Figure 1-7

Vehicle Coverage

On the basis of all OBD II compliant vehicles, including those equipped with universal protocol – Control Area Network (CAN), MOT Pro Scanner expands vehicle system coverage and offers more diagnostic power to the vehicle technicians. Featuring expanded global vehicle coverage, the scan tool offers technicians a significant improvement on model years covered by supported manufactures. In addition to adding new vehicle coverage through 2010/2011, we've also worked backwards to include non-OBD II vehicles, which can be diagnosed by setting up with optional OBDI adaptors.

Product Troubleshooting

Vehicle Linking Error

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

- ✓ Verify that the ignition is ON.
- ✓ Check if the scan tool's connector is securely connected to the vehicle's DLC.
- ✓ Turn the ignition off and wait for about 10 seconds. Turn the ignition back to on and continue the testing.
- ✓ Verify the control module is not defective.

Operating Error

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

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

Scan tool doesn't power up

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

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

2 Diagnostics

Enter vehicle information

Before using the scan tool to diagnose, you must input the vehicle information. There are generally three ways to input the vehicle information.

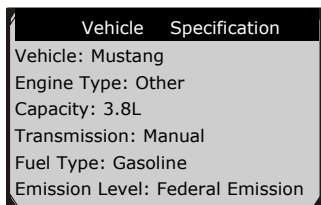
- Vehicle information manual acquisition.
- VIN code automatic acquisition.
- VIN code manual acquisition.

The way to enter diagnostic procedure depends on vehicle being tested.

Vehicle information manual acquisition

Follow these steps to enter the vehicle information and begin diagnostics (Take **Ford** as an example).

- 1) Turn on the scan tool and wait for the **Main Screen** to appear.
- 2) Select **Scan** icon in the **Main Screen** and wait for the vehicle manufacturer screen. Choose the correct vehicle make.
- 3) Step by step, select the right options for your vehicle according to each screen that appears.
- 4) When the complete vehicle information is entered, a vehicle information chart will appear on the screen for your confirmation.



Vehicle	Specification
Vehicle:	Mustang
Engine Type:	Other
Capacity:	3.8L
Transmission:	Manual
Fuel Type:	Gasoline
Emission Level:	Federal Emission

Figure 2-1

VIN code automatic acquisition

Some vehicles could identify the VIN code intelligently, saving customer's time to input complex information (Take **Renault** as an example).



Figure 2-2

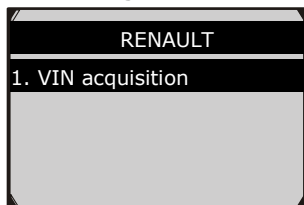


Figure 2-3

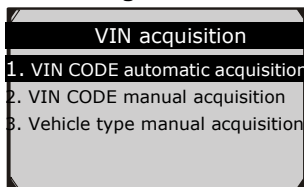


Figure 2-4

In this mode, the scan tool will communicate with the vehicle and read off the VIN code automatically, then it will ask for your confirmation if the VIN code is correct. If the VIN code is incorrect, it will turn to manual mode to input VIN code.

VIN code manual acquisition

For some vehicles, both selecting the options manually and acquiring the VIN are available for you to enter the vehicle information (Take **Benz** as an example).



Figure 2-5

In the Benz Cars menu, choose the item “**2. Select by entering VIN**” and you can enter the VIN code directly.

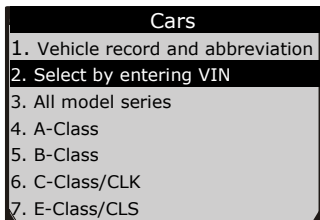


Figure 2-6

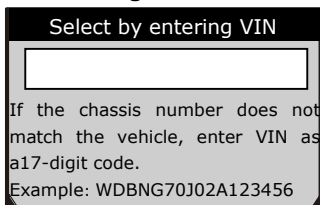


Figure 2-7

When you choose to enter VIN directly, a pop-up soft keyboard is used to input VIN code.

To pop up the keyboard, press the Function button corresponding to **Show**. Use **UP/DOWN** scroll button and **LEFT/RIGHT** scroll button to select digit and character, and then press **OK** button to confirm. Use **Backspace** button to delete the previous digit or character. When finished, press the Function button corresponding to **Finish** to proceed. The scan tool will identify the VIN code and turn to diagnostic procedure.

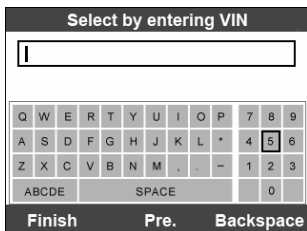


Figure 2-8

Diagnostic Test

After the correct vehicle information is entered, the diagnostic testing selection will display as below:

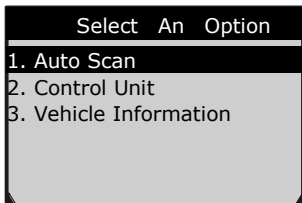


Figure 2-9

Auto Scan

Depending on the scan tool model, **Auto Scan** function will carry out an overall scan to check the status of all systems or four systems (engine, transmission, airbag and ABS) on the vehicle being tested. Selecting **Auto Scan** will lead to retrieve the trouble codes in each system of the vehicle one by one. It will take a few minutes to display.

Use the **UP/DOWN** scroll button to select **Auto Scan** from **Select an Option** menu, and press the **OK** button.

User is allowed to check the details of each system, quickly erase DTC, save the data, and display DTC from the **Auto Scan** menu screen. To select the options on the bottom, simply press the corresponding function button.

- **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 be repaired, 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.

In **Auto Scan** screen, pressing **OK** button will turn to diagnostic operation. For more details, refer to *Diagnosics* on page 8.

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 **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.

Vehicle Information

Vehicle Information function allows you to view vehicle-specific information for Specifications, System Type and other identification.

Vehicle	Specification
Vehicle:	Mustang
Engine Type:	Other
Capacity:	3.8L
Transmission:	Manual
Fuel Type:	Gasoline
Emission Level:	Federal Emission

Figure 2-10

Save and retrieve files

Please follow the instructions above to finish the **Auto Scan** process, then press the Function button corresponding to **Save**, and name the record on the **Save Vehicle Record** screen.

To enter the diagnostic functions through the vehicle record option in future, please follow these steps:

- Select **Vehicle Data Recorder** from the DAS menu.
- Click on the vehicle file you desired to enter the diagnostic menu.

Diagnostic Operation

This function allows you to read and clear diagnostic trouble codes (DTCs) from a vehicle.

Read Codes

The **Read Codes** procedure varies for each vehicle being tested. This section includes the following **Read Codes** procedures.

In the **Function Menu** screen, select **Read Codes**. This will display the **Read Codes** menu screen.

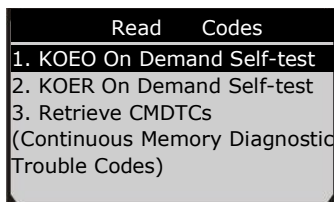


Figure 2-11

In the **Read Codes** menu, select one of the options to proceed. The screen will show as below.

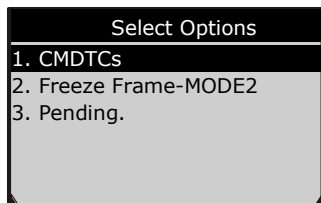


Figure 2-12

Select one of the DTC options to view detailed diagnostic trouble code information.

You can save the code results for later review by selecting **Save** option on the bottom. When you finished viewing the DTCs, press the **ESC** button to return to previous screen.

Erase Codes

After reading and/or reviewing the diagnostic trouble codes, use the following steps to erase the codes from the vehicle. If **Erase Codes** is not an available menu option, consult the manufacturer's service manual for the correct "clear code" method.

NOTE

1. This **Erase Codes** function clears the DTCs from the selected ECU or provides instructions for how to clear the codes from the ECU.
 2. Before performing this procedure, make sure the vehicle's ignition key is in the On (Run) position with the engine off.
-

To Erase DTCs, please follow these steps:

1. With the **Function Menu** screen displayed, click on **Erase Codes**. The scan tool displays an instruction message.
2. Follow the instructions on each screen that appears until the procedure is complete.
3. When finished, press any key to exit.
4. Use **Read Codes** function to check the codes again to see if DTCs have been erased successfully. If any codes remain, repeat the **Erase Codes** steps.

3 Generic OBD II Diagnostics

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

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

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

- 1) Turn the ignition off.
 - 2) Locate the vehicle's 16-pin Data Link Connector (DLC).
 - 3) Plug the scan tool cable connector into the vehicle's DLC.
 - 4) Turn the ignition on. Engine can be off or running.
 - 5) Turn on the scan tool. Select **OBD II** in the main screen.
 - 6) Press the **OK** button to wait for the Menu to appear. A sequence of messages displaying the OBD II protocols will be observed on the display until the vehicle protocol is detected.
- *If the scan tool fails to communicate with the vehicle's ECU (Engine Control Unit) more than three times, a "LINKING ERROR!" message shows up on the display.*
 - ✓ Verify that the ignition is ON.
 - ✓ Check if the scan tool's OBD II connector is securely connected to the vehicle's DLC.
 - ✓ Verify that the vehicle is OBD II compliant.
 - ✓ Turn the ignition off and wait for about 10 seconds. Turn the ignition back to on and repeat the procedure from step 5.
 - *If the "LINKING ERROR" message does not go away, then there might be problems for the scan tool to communicate with the vehicle. Contact your local distributor or the manufacturer's customer service department for assistance.*
- 1) View a summary of system status (MIL status, DTC counts, Monitor status) on screen. Press **OK** button for **Diagnostic Menu** to come up.

System Status	
MIL Status	OFF
Codes Found	0
Monitors N/A	8
Monitors OK	2
Monitors INC	0

Save OK

Figure 3-1

- If more than one module is detected, you will be prompted to select a module before testing.
- Use the **UP/DOWN** scroll button to select a module and press the **OK** button.

Read Codes

- ◆ *Reading Codes can be done with the key on engine off (KOEO) or with the key on engine running (KOER).*
- 1) Use **UP/DOWN** scroll button to select **Read Codes** from **Diagnostic Menu** and press **OK** button.

Diagnostic Menu
1. System Status
2. Read Codes
3. Erase Codes
4. Live Data
5. Freeze Frame
6. I/M Readiness

Figure 3-2

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

NOTE

Permanent Codes is available for vehicles supporting the CAN protocols.

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

Erase Codes

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

NOTE

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

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

- 1) Use the **UP/DOWN** scroll buttons to select **Erase Codes** from **Diagnostics Menu** and press the **OK** button.
- 2) A warning message comes up asking for your confirmation.
 - If you do not want to proceed with erasing codes, press **ESC** button or select **NO** to exit and return to previous screen.
- 3) Press the **OK** button to confirm.
 - If the codes are cleared successfully, an “Erase Done!” confirmation message shows on the display.
 - If the codes are not cleared, then an “Erase Failure. Turn Key on with Engine off!” message appears.
- 4) 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).

- 1) To view live data, use the **UP/DOWN** scroll button to select **Live Data** from **Diagnostic Menu** and press the **OK** button.
- 2) Wait a few seconds while the scan tool validates the PID MAP.

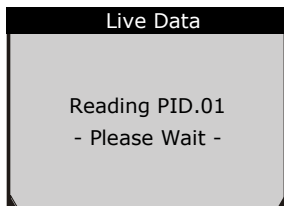
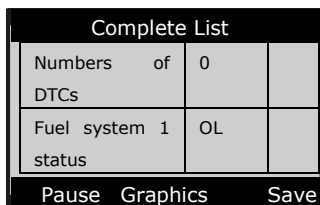


Figure 3-3

View Complete List

- 1) To view complete set of data, use **UP/DOWN** scroll button to select **Complete List** from **Live Data** menu and press the **OK** button.
- 2) View live PIDs on the screen. Use the **UP/DOWN** scroll button for more PIDs if additional information is available on more than one page.



Complete List		
Numbers of	0	
DTCs		
Fuel system 1	OL	
status		

Pause Graphics Save

Figure 3-4

- If the **Graphics** appears when a PID is highlighted, graphic information is available. Select **Graphics** to view graph.

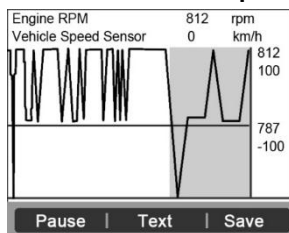


Figure 3-5

- If the **Merge Graph** at the bottom appears when a PID is selected to view, merged graph information is available.

NOTE

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

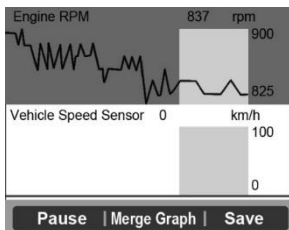


Figure 3-6

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

View Custom List

- 1) To view customized PID data, use the **UP/DOWN** scroll button to select **Custom List** from **Live Data** menu and press the **OK** button.
- 2) Use the **UP/DOWN** scroll button to move up and down to the desired items and click **Select** button to confirm. The selected parameters are marked with solid squares.

Custom List	
Numbers of DTCs	1
Fuel system 1 status	2
Fuel system 2 status	
Calculated load value	
Engine coolant temp	
Select All	Clear
	Clear

Figure 3-7

- The number to the right of selected item indicates sequence of this item.

- If you want to deselect the item, press **Clear** button.
 - To select all the items on the screen, press **Select All** button. To clear all the selected items on the screen, press **Clear All** button.
- 3) Press the **OK** button to view selected PIDs on screen.
 - 4) Use the **ESC** button to return to previous menu.

Record Data

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

NOTE

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

- 1) To record live data, with the live data screen displaying, select **Save** on the bottom. The scan tool will start timing to record retrieved live data and PID graphs.
 - If you record live data under text mode, following screen shows:

Complete	List
Numbers of DTCs	0
Fuel system status	1 OL
Fuel system status	2 --

Pause Graphics Saving 94

Figure 3-8

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

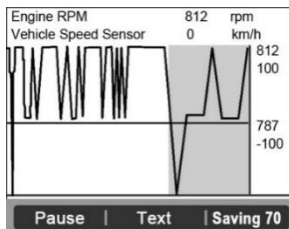


Figure 3-9

NOTE

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

- 2) When there is not enough memory space, a warning message prompting to delete previously recorded data.
 - To delete the data, select **Yes** and save currently retrieved data in the SD card.
 - Select **No** to return to previous screen and do not delete the data.
- 3) Select **Pause** to suspend recording. Select **Start** to resume.
- 4) You may review the saved data in **Playback** function.
- 5) Press **ESC** button to exit.

Freeze Frame

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

- 1) To view freeze frame data, use the **UP/DOWN** scroll button to select **Freeze Frame** from **Diagnostic Menu** and press the **OK** button.
- 2) Wait a few seconds while the scan tool validates the PID MAP.
- 3) If retrieved information covers more than one screen, use the **DOWN** scroll button, as necessary, until all the data have been shown up.
 - If there is no available freeze frame data, an advisory message "**No freeze frame data stored!**" shows on the display.
- 4) Select **Save** to record freeze frame. A confirming message "**Save success!**" shows on the display and scan tool return to previous menu.
- 5) If you don't want to save the freeze frame data, press **ESC** button to return to previous screen.

Retrieve I/M Readiness Status

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

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

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

- A. Since DTCs Cleared** - indicates status of the 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 emissions inspection.

- **OK** – Indicates that a particular monitor being checked has completed its diagnostic testing.
 - **INC** – Indicates that a particular monitor being checked has not completed its diagnostic testing.
 - **N/A** – The monitor is not supported on that vehicle.
- 1) Use the **UP/DOWN** scroll button to select **I/M Readiness** from **Diagnostic Menu** and press **OK** button.
 - 2) Wait a few seconds while the scan tool validates the PID MAP.
 - 3) If the vehicle supports both types of tests, then both types will be shown on the screen for selection.
 - 4) Use the **UP/DOWN** scroll button, as necessary, to view the status of the MIL light (**ON** or **OFF**) and the following monitors.

For spark ignition engines:

- MIS - Misfire Monitor
- FUEL - Fuel System Monitor
- CCM - Comprehensive Component Monitor
- EGR - EGR System Monitor
- O2S - O2 Sensors Monitor
- CAT - Catalyst Monitor
- EVAP - Evaporative System Monitor

- HTR – O2 Sensor Heater Monitor
- AIR – Secondary Air Monitor
- HCAT – Heated Catalyst Monitor

For compression ignition engines:

- MIS – Misfire Monitor
 - FUEL – Fuel System Monitor
 - CCM – Comprehensive Component Monitor
 - EGR – EGR System Monitor
 - HCCAT – NMHC Catalyst Monitor
 - NCAT – NOx Aftertreatment Monitor
 - BP – Boost Pressure System Monitor
 - EGS – Exhaust Gas Sensor Monitor
 - PM – PM Filter Monitor
- 5) If the vehicle supports readiness test of “**This Drive Cycle**”, a screen of the following displays.

This Drive Cycle		
MIL Status	OFF	
Misfire Monitoring	N/A	
Fuel system monitoring	OK	

Figure 3-10

- 6) Use the **UP/DOWN** scroll button for more PIDs if additional information is available on more than one page. Or use the **LEFT/RIGHT** scroll button to view PIDs in the previous/next page.
- 7) Press the **ESC** button to return to **Diagnostic Menu**.

O2 Monitor Test

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

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

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

- 1) Use the **UP/DOWN** scroll button to select **O2 Monitor Test** from **Diagnostic Menu** and press **OK** button.
- 2) Wait a few seconds while the scan tool validates the PID MAP.
- 3) Use the **UP/DOWN** scroll button to select O2 sensor from **O2 Monitor Test** menu and press **OK** button.

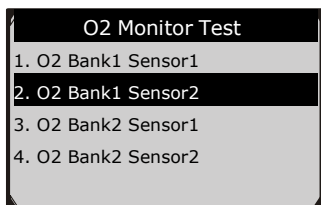


Figure 3-11

- If the vehicle does not support the mode, an advisory message will be displayed on the screen.
- 4) View test results of selected O2 sensor.

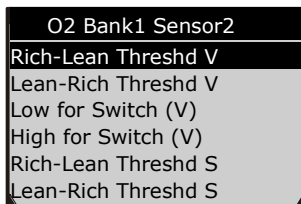


Figure 3-12

- 5) Use the **UP/DOWN** scroll button to view more data if additional information is available in more than one page.
- 6) Press the **ESC** button to return to the previous menu.

On-Board Monitor Test

The **On-Board Monitor Test** is useful after servicing or after erasing a vehicle's control module memory. The On-Board Monitor Test for non-CAN-

equipped vehicles retrieves and displays test results for emission-related power train components and systems that are not continuously monitored. The On-Board Monitor Test for CAN-equipped vehicles retrieves and displays test results for emission-related power train components and systems that are and are not continuously monitored. Test and components IDs are determined by the vehicle manufacturer.

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

- 1) Use the **UP/DOWN** scroll button to select **On-Board Monitor Test** from **Diagnostic Menu** and press the **OK** button.
- 2) Wait a few seconds while the scan tool validates the PID MAP.
- 3) The scan tool will prompt you to select the vehicle make.
- 4) After you select the vehicle manufacturer, the scan tool shows the On-Board Monitors tests for specific monitoring systems.
- 5) From **On-Board Monitor Test** menu, use the **UP/DOWN** scroll button to select a test to view and press the **OK** button.

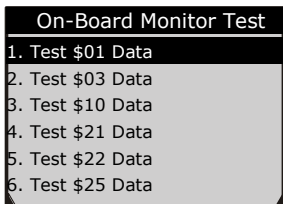


Figure 3-13

- If the vehicle under test does not support the mode, an advisory message will be displayed on the screen.
- For CAN-equipped vehicles, test selections can be as below:

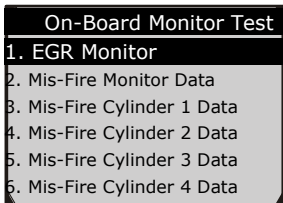


Figure 3-14

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

- 7) View test data on screen.

Test \$01 Data		
ID	11	
Module	\$10	
Test Value	0400	
Min Limit	0200	
Max Limit	----	
Status	OK	

Figure 3-15

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

Flow Test		
Test Value	0.10	%
Min Limit	0.00	%
Max Limit	95.0	%
Status	OK	

Figure 3-16

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

Component Test

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

- 1) Select **Component Test** from **Diagnostic Menu** and press **OK**.
- 2) Wait for the scan tool to display the **Component Test** menu.
- 3) If the test has been initiated by the vehicle, a confirmation message will be displayed on the screen.
 - Some vehicles do not allow scan tools to control vehicle systems or components. If the vehicle under test does not support the EVAP Leak Test, an advisory message is displayed on the screen.
- 4) Press any key to return to previous screen.

View Vehicle Information

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

- 1) Select **Vehicle Info.** from the **Diagnostic Menu** and press **OK**.
- 2) An advisory message comes up to remind you. Wait a few seconds or press any key to continue.

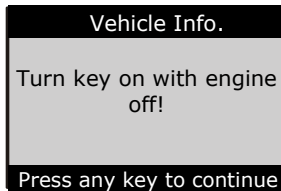


Figure 3-17

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

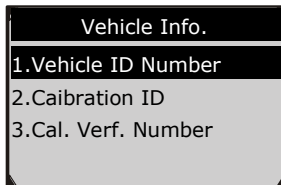


Figure 3-18

- If the vehicle does not support this mode, a message shows on the display warning that the mode is not supported.
- 4) From **Vehicle Info.** Menu, select an available item to view and press **OK**.
 - 5) View retrieved vehicle information on screen.

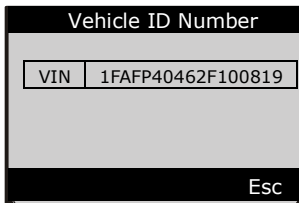


Figure 3-19

- 6) Press **ESC** to return previous menu

Modules Present

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

- 1) Select **Modules Present** from **Diagnostic Menu** and press **OK**.
- 2) View modules present with their IDs and communication protocols.

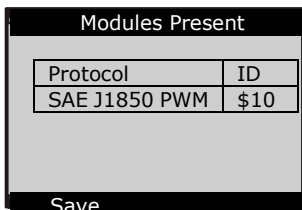


Figure 3-20

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

DTC Lookup

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

- 1) Select **DTC Lookup** from **Diagnostic Menu** and press **OK**.
- 2) Wait for the scan tool to display the **DTC Lookup** screen.

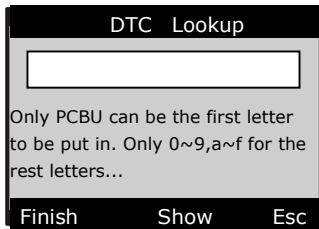


Figure 3-21

- 3) Select **Show** and a soft keyboard will pop up. Select the desired character, then press **OK** to confirm.
- 4) After you input the DTC code, select **Finish** and the scan tool will ask for your confirmation.
- 5) Press **Yes** or **OK** button to proceed. The scan tool will display DTC definition as below.

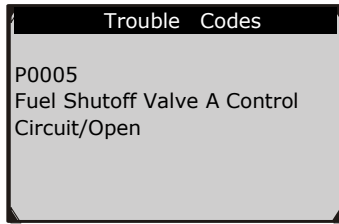


Figure 3-22

- Use the **LEFT/RIGHT** scroll button to view the previous / next DTC.
 - Select **Save** to record code definition.
 - For manufacturer specific codes, you need to select a vehicle make on an additional screen to look for DTC definitions.
 - If definition could not be found (SAE or Manufacturer Specific), the scan tool displays "**Please refer to vehicle service manual!**"
- 6) Press **No** or **ESC** button to return to previous menu.

4 Playback Data

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

NOTE

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

Review Data

- 1) Use the **LEFT/RIGHT** scroll button to select **Playback** from **Main Screen**, and press the **OK** button. Wait for the **Scan** screen to appear.
- 2) To review the data saved in the scan function, select **SCAN** in the Replay menu. To review the data in the saved EPB function, select EPB in the reply menu. Then press **OK** to continue.
- 3) Use the **UP/DOWN** scroll button to select the desired item from **Scan** screen, and press the **OK** button.
 - *If no data from previously tested vehicle is recorded, a message “**No data available!**” shows on the screen.*
- 4) Review selected data on screen.

Vehicle	Specification
Vehicle:	Mustang
Engine Type:	Other
Capacity:	3.8L
Transmission:	Manual
Fuel Type:	Gasoline

Figure 4-1

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

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

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

MOT Pro scan tool

A PC or laptop with USB ports

A USB cable

NOTE

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

- 1) Install **Autel Maxi PC Suite** through the included CD.
- 2) Connect the scan tool to computer with the USB cable supplied.
- 3) Run **MOT Pro Printer** software on computer.
- 4) Select **Playback** function in **Main Screen** of the scan tool. In **Scan** screen, use the **UP/DOWN** scroll button to select the files you want to print. Wait for the reviewing window to display, then select **Print** function on the bottom. The selected file will be uploaded to your computer.
- 5) The **MOT Pro Printer** will show as below.



Figure 4-2

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

- **Print** – Print all data in the textbox to a printer connected to your computer.
 - **Edit** – Once clicked, the software will automatically open a NOTEPAD window with all recorded data showing on.
 - **Copy** – Copy all data in the textbox to the clipboard.
 - **Clear** – Delete all data in the textbox.
 - **Exit** – Quit the operation.
- 7) You are also allowed to edit, copy, and delete the data in the **MOT Pro Printer** window.
-

① **NOTE**

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

5 Software Update

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

Register the Tool

User would update the scan tool **ONLY** after you had registered the tool on our website: www.autel.com. 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 <http://pro.autel.com>.
2. On the Sign In page, input your account ID and other information to log in, if you already have an account.
3. If you are a new member to Autel and do not have an account yet, click the **Create Autel ID** button on the left side.
4. Enter the required information in the input fields, read through Autel's Terms and Conditions and tick on **Agree**, and then click **Create Autel ID** at the bottom to continue.
5. The online system will automatically send a confirmation email to the registered email address. Validate your account by clicking the link provided through the mail. A product registration screen opens.
6. Select the product model of your device, enter the product serial number and password on the Product Registration screen, and click **Submit** to complete the registration procedure.

NOTE

Please use the **About** function to find out the Product Serial No. and Register Password. For details, please refer to [System Setup](#) on page 4.

Update Procedure

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

1. Install **Maxi PC Suite** through the included CD or you can use a **Mac** or a **Windows-based** computer to download the suitable version from our website and proceed.
2. Make sure that your computer is connected to the Internet.
3. Load the SD card of the scan tool to your PC.
4. Run the **Maxi PC Suite**. Wait for the Log In window to pop up.

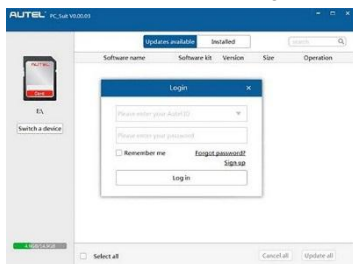


Figure 5-1

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

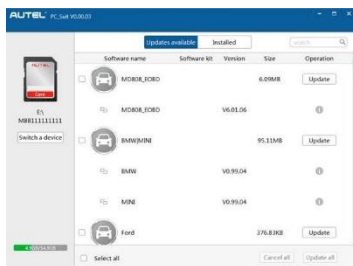


Figure 5-2

Generally, there are two ways to update programs:

Batch Update

- Select the programs that you would update by clicking on the check boxes next to those items. Then click the **Update Selected Items** button on the right side of screen.

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

Single Update

- Find out the desired updating item and click the **Install** button in the same line. With updating in progress, the **Install** button changes to STOPPED.
- Check the updating process by observing the upper left progress bar [Downloads] and upper right progress bar [Installs]. You may also find progress information in the Status column of updated items.
- Anytime you could click the **Pause** button in the line to suspend this progress, and the state of this item would change to STOPPED.
- To resume updating process, click the **Install** button in the line again. The progress will resume from the break point.
- When the downloading is completed, the downloaded program will be installed automatically. The new version will replace the old version.

View or Delete Programs

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

- Click on the **Installed Programs** tag entry and the page will show the list of programs installed.
- Select the program(s) that you would delete.

- ✧ **Batch delete:** Select the programs that you would delete by clicking on the check boxes to the left of those items. Then click the **Delete** button on the right side of screen.
- ✧ **Single delete:** Click the **Uninstall** button in the line of your would-be-deleted program.
- A window asking “Are you sure to delete the software?” will pop up for your confirmation.

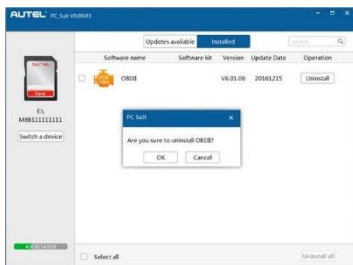


Figure 5-3

- Click on **OK** to delete the program(s) selected, or on **Cancel** to cancel the action.
- The deleted program will automatically add to the end of program list in the Update page in case you would like to install again.

6 Oil Reset

General Information

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

 **NOTE**

1. Always reset the engine oil life to 100% after every oil change.
 2. 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.
 3. For some vehicles, the scan tool performs added functionality to reset additional service lights (maintenance cycle, service interval). Take BMW as an example, its service reset function includes engine oil, spark plugs, front/rear brakes, coolant, particle filter, brake fluid, microfilter, vehicle inspection, exhaust emission inspection and vehicle check.
-

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

Reset Operation

1. Turn the ignition on but do not start the engine.
2. Turn on the scan tool and wait for the **Main Screen** to appear.
3. Select **Oil Reset** icon in the **Main Screen** 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 it, please follow these steps (Take **Ford** as an example):

- 1) From the vehicle make screen, select Ford and press **OK** button.
- 2) Step by step, select the right options for your vehicle according to each screen that appears.
- 3) After entering the vehicle information, the scan tool displays manual reset message as below.

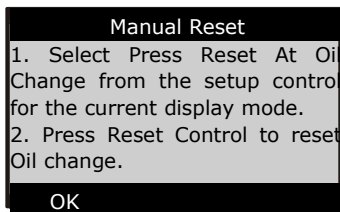


Figure 6-1

- 4) Follow the instructions to reset the service manually.
- 5) Press ESC button to exit.

Auto Reset

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

NOTE

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

To finish it, please follow these steps (Take **PEUGEOT** as an example).

- 1) From the vehicle make screen, select **PEUGEOT** and press **OK** button.
- 2) Step by step, select the right options for your vehicle according to each screen that appears.
- 3) After you have entered the vehicle information, the oil reset screen will display as below.

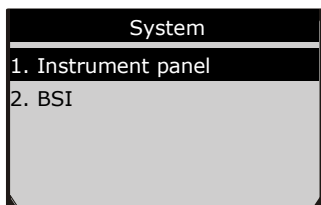


Figure 6-2

- 4) The **Instrument Panel** option enables you to finish oil reset service in one step by resetting the ECU to default values automatically. The procedures work as below.
 - In the **Oil Reset** menu, select **Service Zero Reset** and press **OK**.
 - The tool will automatically reset the vehicle ECU to default values.

- When finished, the tool will display a confirmation message.
- 5) The **BSI** option enables you to finish oil reset service automatically and manually. The procedures work as below.
- In the **Oil Reset** menu, select **Resetting to zero of the service mileage** function and press **OK** button.
 - The tool will reset the oil service to zero automatically.
 - ✓ In the **Oil Reset** menu, 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 service (months)	6
First maintenance threshold	china
Maintenance limit(km)	7400

Figure 6-3

- ✓ For the **First maintenance threshold**, you have two choices (China/Other Countries). Select the correct option and press **OK** button to save the change.
- ✓ For the **Period before service** or **Maintenance limit**, press **Edit** key on the bottom to pop up a soft keyboard to facilitate your input.

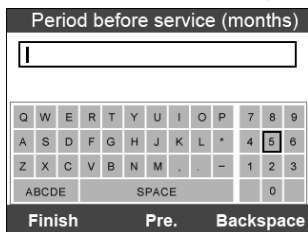


Figure 6-4

The three keyboard function keys work as below.

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

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

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

NOTE

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

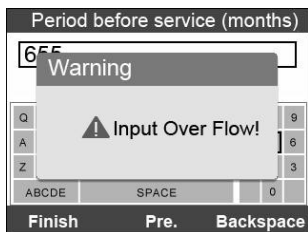


Figure 6-5

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

7 EPB

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

EPB Safety

It may be dangerous to perform electric parking brake (EPB) system maintenance, before operation, 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.
- Perform maintenance 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 Maintenance

- 1) Turn the ignition off.
- 2) Release the park brake and make sure the car is properly blocked.
- 3) Connect the tool to vehicle and power on.
- 4) Turn the ignition on.
- 5) Select **EPB** icon in the **Main Screen** and wait for the vehicle manufacturer screen. Choose the correct vehicle make (Take **PEUGEOT** as an example).
- 6) After you have selected the vehicle make, the electric parking brake system screen will display as below.

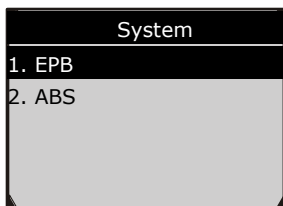


Figure 7-1

- 7) In the electric parking brake system screen, use the **UP/DOWN** button to select **EPB** to enter EPB system. In the EPB diagnostic function, the tool can read codes, erase codes, record live data, read ECU information, perform active test, and perform special function.

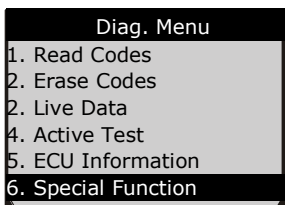


Figure 7-2

Special Function

- 1) In the **Diagnostic Menu**, use the **UP/DOWN** button to select **Special Function** to do the EPB test, which includes **Brake cable replacement** and **Electric parking brake replacement**.
- 2) In the **EPB** screen, use the **UP/DOWN** button to select **Brake cable replacement**. The screen shows as below.

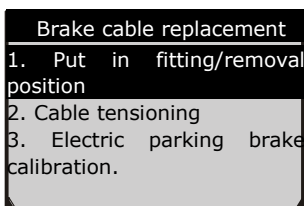


Figure 7-3

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

Put in fitting or removal position

This function enables you to fit in or remove the brake cable safely and easily. It will take a few seconds to execute this command. When the job is done successfully, the tool will display a message to confirm. If the job fails to finish, the tool will display a message to remind user of a problem. After you exit the diagnosis program, please repair the problem immediately.

Cable tensioning

Once the brake cable is fit in, you would use this function to adjust its tension. It will take a few seconds to execute this command. When the job is done successfully, the tool will display a message to confirm. If the job fails to finish, the tool will display a message to remind user of a problem. After you exit the diagnosis program, please repair the problem immediately.

Electric parking brake calibration

When both functions above have completed successfully, you still need to calibrate the electric parking brake system. This function is to check if the EPB is working correctly, which should be performed after work has been completed on the EPB or vehicle braking system. It will remove any air gap from the brake pads and check the EPB pressure. After you select this function, the tool will automatically work in the following procedure.

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

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

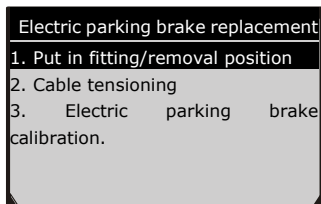


Figure 7-4

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

Active Test

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

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

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

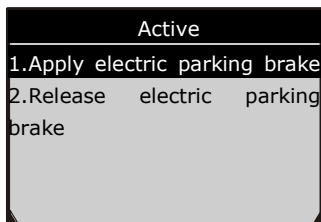


Figure 7-5

3. Select a test and the tool will display an information screen as “The 'apply electric parking brake' operation is used to test the operation of the brake cables statically. If you start the actuator test, you must wait for the component to stop operating before starting another actuator test. Press OK to apply the electric parking brake or press 'Cancel' to go back to the list of possible operation.” Select **OK** to continue or **Cancel** to exit.
4. The tool may display information during and after the test. The information varies by vehicle.

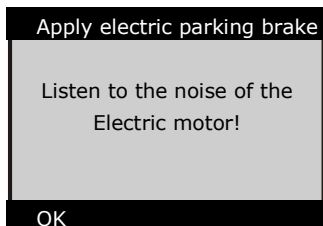


Figure 7-6

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

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

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

In the third condition, the tool will display an information screen as “The actuator test did not finish operating. Please perform the following check: Read the faults to resolve any possible faults relating to the electric motor or to the cables.”

🔧 **IMPORTANT**

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

🔧 **WARNING**

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

ABS Maintenance

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

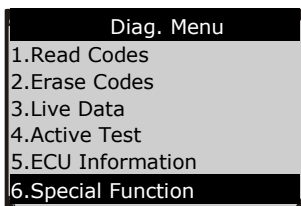


Figure 7-7

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

Special Function

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

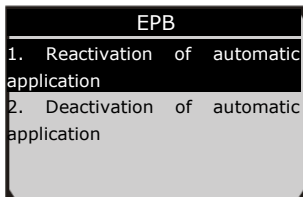


Figure 7-8

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

Active Test

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

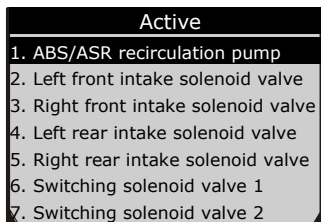


Figure 7-9

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

8 ABS/SRS

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

NOTE

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

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

- 1) Turn the ignition off.
- 2) Locate the vehicle's 16-pin Data Link Connector (DLC).
- 3) Plug the scan tool cable connector into the vehicle's DLC.
- 4) Turn the ignition on but do not start the engine.
- 5) Turn on the scan tool and wait for the **Main Screen** to appear.
- 6) Use the **UP/DOWN** scroll button or **LEFT/RIGHT** scroll button to select **AbsSrs** in the **Main Screen**.

Vehicle Selection

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

Select vehicle step by step

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

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

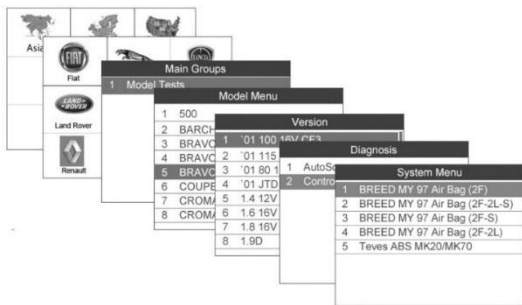


Figure 8-1

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

Chevrolet	
1	M
2	S
3	T
4	W
5	Y

Figure 8-2

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

S	
1	Body
2	Chassis

Figure 8-3

Manual vehicle entry

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

- 1) Select the **Ford** logo from the car make screen.
- 2) Select the **Manual Vehicle Entry** option from the **DAS** menu.

DAS	
1	Start New Session
2	Manual Vehicle Entry
3	Vehicle selection

Figure 8-4

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

Select An Option	
1	PCM Part Number
2	Calibration Number
3	Tear Tag

Figure 8-5

- 4) Take the **PCM Part Number** entry for example. Fill up the accurate vehicle information in the input entry.

PCM Part Number		
Prefix	4L5A	
BasePn	12A650	
Suffix	AKA	
Finish	Edit	Esc

Figure 8-6

Prefix												
415A												
Q	W	E	R	T	Y	U	I	O	P	7	8	9
A	S	D	F	G	H	J	K	L	*	4	5	6
Z	X	C	V	B	N	M	.	_	1	2	3	
qwerty			SPACE						0			
Finish	Pre.	Backspace										

Figure 8-7

NOTE

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

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

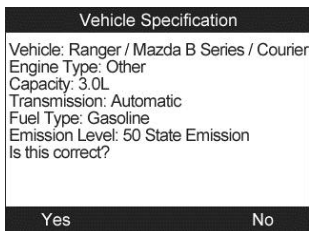


Figure 8-8

Auto vehicle entry

This function allows users skipping step-by-step vehicle identification procedure and retrieve the vehicle information from vehicle ECU directly.

NOTE

This function may not be available for all vehicles.

Take **Ford** as an example.

- 1) Select the **Ford** logo from the vehicle make screen.
- 2) Use the **UP/DOWN** scroll button to select the **Start New Session** from the **DAS** menu.

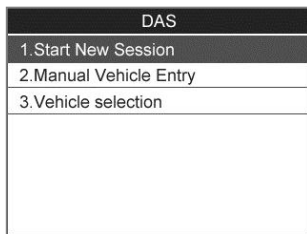


Figure 8-9

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

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

ABS Diagnostics

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

3.6 L (LFX)	
1	Supplemental Inflatable Restraint
2	Electronic Brake Control Module

Figure 8-10

Select **Electronic Brake Control Module** and press **OK**.

Electronic Brake Control Module	
1	Diagnostic Trouble Codes (DTC)
2	Data Display
3	Special Functions
4	Module ID Information

Figure 8-11

Read Codes

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

- 1) Select **Diagnostic Trouble Codes** from the diagnostic function menu and press **OK**.

Diagnostic Trouble Codes (DTC)	
1	Read DTC Information
2	Clear DTC Information

Figure 8-12

- 2) Select **Read DTC Information** and press **OK**.
- 3) View DTCs and their definitions on screen.

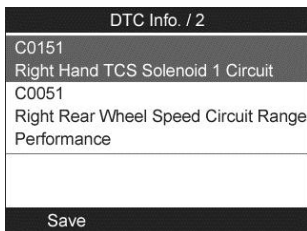


Figure 8-13

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

Erase Codes

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

NOTE

If you plan to take the vehicle to a Service Center for repair, **DO NOT** erase the ABS DTCs from the vehicle's computer. If the codes are erased, valuable helpful information will be erased.

- 1) Select **Diagnostic Trouble Codes** from the menu and press **OK**.
- 2) Select **Clear DTC Information** and press **OK**.
- 3) A warning message will come up asking your confirmation.
- 4) Select **Yes** to continue or **No** to exit. When the command is sent, the tool will display a message.
- 5) Perform **Read DTC Information** to verify DTCs are erased completely.

Data Display

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

- 1) Select **Data Display** from the menu and press **OK**.

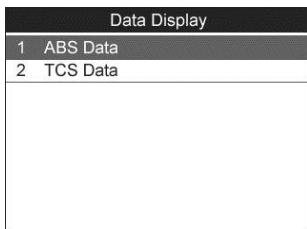


Figure 8-14

- 2) Select **ABS Data** or **TCS Data** and press **OK** to view the data streams.

ABS Data		
LF Wheel Speed Sensor	0	mph
RF Wheel Speed Sensor	0	mph
LR Wheel Speed Sensor	0	mph
RR Wheel Speed Sensor	0	mph
Battery Voltage Signal	0.00	Volts

Pause | One Graphic | Save

Figure 8-15

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

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

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

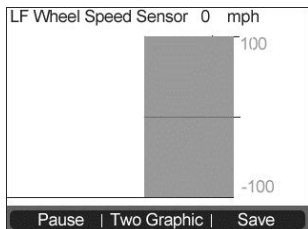


Figure 8-16

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

Special Functions

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

- 1) Select **Special Functions** from the menu and press **OK**.

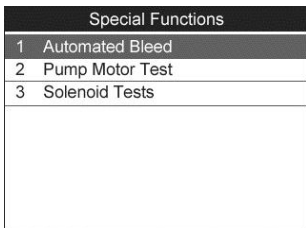


Figure 8-17

- 2) Select the desired function, and press **OK** (Take **Automated Bleed** as an example).
- 3) A series of message screens appears to instruct users on the whole procedure. Follow the on-screen instructions step by step to take the proper operation.

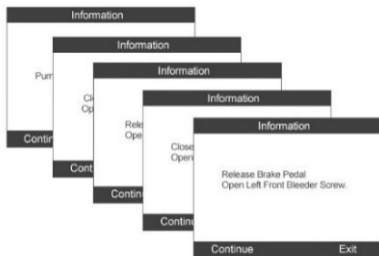


Figure 8-18

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

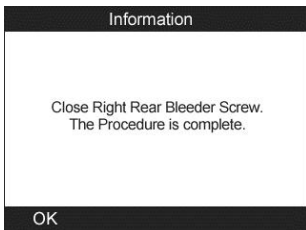


Figure 8-19

Module ID Information

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

- 1) Select **Module ID Information** from the menu and press **OK**.
- 2) View module information present with its IDs and part numbers.

Module ID Information	
End Model Part Number	20001331
Base Model Part Number	36778547
Software Part Number	70332979
Calibration Part Number	87110195
Save	Esc

Figure 8-20

- 3) Select **Save** to store the data or press **ESC** to exit without saving.
 - If ABS communication is not supported, an advisory message shows on the screen. Press **ESC** to return to the previous menu.

SRS Diagnostics

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

3.6 L (LFX)	
1	Supplemental Inflatable Restraint
2	Electronic Brake Control Module

Figure 8-21

Select **Supplemental Inflatable Restraint** and press **OK**.

Supplemental Inflatable Restraint	
1	Diagnostic Trouble Codes (DTC)
2	Data Display
3	Special Functions
4	Module ID Information

Figure 8-22

Read Codes

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

- 1) Select **Diagnostic Trouble Codes (DTC)** from the menu and press **OK**.

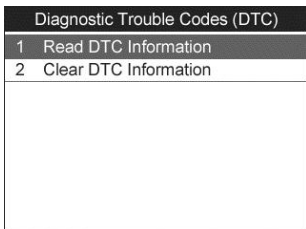


Figure 8-23

- 2) Select **Read DTC Information** and press **OK**.
- 3) View DTCs and their definitions on screen.

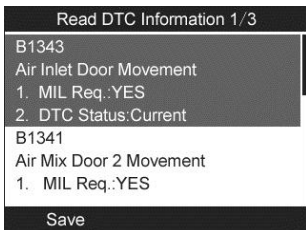


Figure 8-24

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

Erase Codes

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

NOTE

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

- 1) From the diagnostic function menu use the **UP/DOWN** scroll button to select **Diagnostic Trouble Codes** and press the **OK** button.
- 2) Use the **UP/DOWN** scroll button to select **Clear DTC Information** and press the **OK** button.
- 3) A warning message will come up asking for your confirmation.

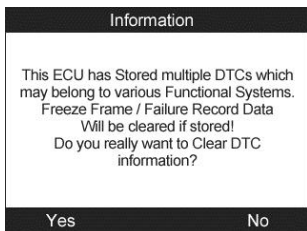


Figure 8-25

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

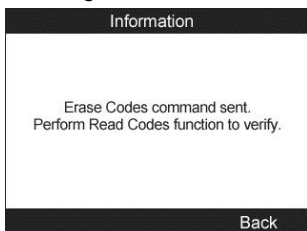


Figure 8-26

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

Data Display

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

- 1) Select **Data Display** from the diagnostic function menu and press **OK**.

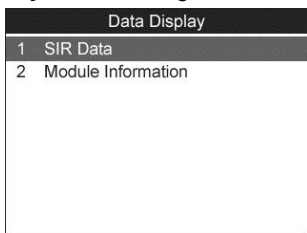


Figure 8-27

- 2) Select **SIR Data** and press **OK** to view the data streams.

SIR Data		
Battery Voltage	12.6	Volts
Restraints ID	01	
Drvr Air Bag Stage 1 Resist.	0	Ohms
Driver Pretensioner Res.	0	Ohm
Pause One Graphic Save		

Figure 8-28

- 3) To view the live PIDs, use the **UP/DOWN** scroll button for all PIDs to display if additional information is available on more than one page.
- 4) Press the **ESC** button to return to the previous menu.

Special Functions

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

- 1) Select **Special Functions** from the menu and press **OK**.
- 2) The tool displays available special functions for the vehicle being tested. Select the desired function, and press **OK** (Take **Chime Output** as an example).

Output Controls	
1	Chime Output
2	Driver Seat Belt Reminder
3	Passenger Seat Belt Reminder

Figure 8-29

- 3) Press the corresponding **FUNCTION** button [**ON**] or [**OFF**] to check whether the Chime on the vehicle is turning on or off.

Chime Output		
Commanded State:	Off	
Battery Voltage	12.6	Volts
Restraints ID	01	
Drvr. Air Bag Stage 1 Resist.	0	Ohms
Off On		

Figure 8-30

Module ID Information

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

- 1) From the diagnostic function menu use the **UP/DOWN** scroll button to select **Module ID Information** and press the **OK** button.
- 2) View module information present with its IDs and part numbers.

Module ID Information	
End Model Part Number	0
Base Model Part Number	2155905152
Software Part Number	255
Calibration Part Number	4294967295
Save Esc	

Figure 8-31

- 3) Select **Save** to store the module ID information or press the **ESC** button to exit without saving.
 - If the vehicle does not support SRS communication, an advisory message shows on the screen. Press **ESC** button to return to the previous menu.

9 SAS Calibration

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

Calibration must always be carried out after the following operations:

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

NOTE

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. All software screens shown in this manual are examples, actual test screens may vary for each vehicle being tested. Observe the menu titles and onscreen instructions to make correct option selections.
3. Before starting procedure, make sure vehicle has ESC. Look for button on dash.

Take **Toyota** as an example.

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

- a. If the vehicle is equipped with an A/T, ensure that the shift lever is in “P” range and the parking brake is applied. If the vehicle is equipped with an M/T, ensure that the parking brake is applied.
- b. Turn the ignition off.
- c. Locate the vehicle’s 16-pin Data Link Connector (DLC).
- d. Plug the scan tool cable connector into the vehicle’s DLC.
- e. Turn the ignition on but do not start the engine.
- f. Turn on the scan tool and wait for the **Main Screen** to appear.
- g. Use the **UP/DOWN** scroll button or **LEFT/RIGHT** scroll button to select **SAS** in the **Main Screen**.
- h. Wait for a series of vehicle identification screens appears for user to identify the vehicle. On each screen that appears, use the **UP/DOWN** scroll button to select the correct option and then press the **OK** button. Do this until the vehicle is completely identified.

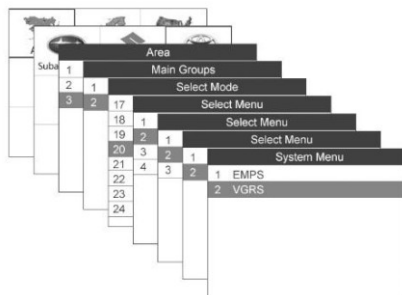


Figure 9-1

- i. 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 9-2

Read Codes

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

- 1) Select **Read Codes** from the function menu and press **OK**.
- 2) View DTCs and their definitions on screen.

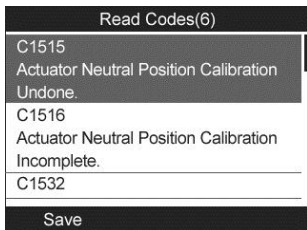


Figure 9-3

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

Erase Codes

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

- 1) Select **Erase Codes** from the function menu and press **OK**.
- 2) A warning message will come up asking for your confirmation.
- 3) Select **Yes** to continue or **No** to exit. When the command is sent, the tool will display a message as below.

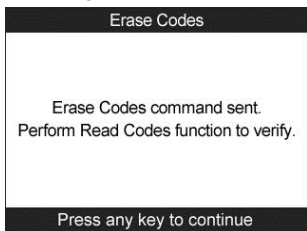


Figure 9-4

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

Freeze Frame Data

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

- 1) Select **Freeze Frame Data** from the function menu and press **OK**.
- 2) View the related operating parameters on screen.

Freeze Frame Data		
Steering Pos 1(Parallel)	1854.2	deg
Vehicle Speed(Vsc ECU)	158	mph
Engine Revolution(Rpm)	Not Table Data	
Mtr Power Source Cur.	127.5	A
Estimated Motor Cur.	127.5	A
Actuator Position	288.03	deg
Save		

Figure 9-5

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

Live Data

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

Select **Live Data** from the function menu and press **OK**.

Live Data	
1	All Data
2	Custom List

Figure 9-6

All Data

- 1) Select **All Data** from the Live Data menu and press **OK**.
- 2) The tool will display a list of all live sensor data.

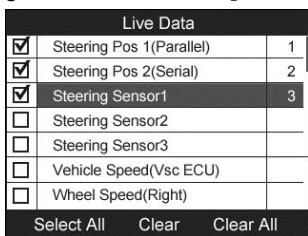
Live Data		
Steering Pos 1 (Parallel)	1854.2	deg
Steering Pos 1 (Parallel)	1854.2	deg
Steering Sensor1	Not Table Data	
Steering Sensor2	Not Table	
Pause One Graphic Save		

Figure 9-7

Custom List

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

- 1) To retrieve customized live sensor data, select **Custom List** from **Live Data** menu and press **OK**.
- 2) Use the **UP/DOWN** scroll button to move to the desired item and press the corresponding **FUNCTION** button [**Select**] to choose.



Live Data		
<input checked="" type="checkbox"/>	Steering Pos 1(Parallel)	1
<input checked="" type="checkbox"/>	Steering Pos 2(Serial)	2
<input checked="" type="checkbox"/>	Steering Sensor1	3
<input type="checkbox"/>	Steering Sensor2	
<input type="checkbox"/>	Steering Sensor3	
<input type="checkbox"/>	Vehicle Speed(Vsc ECU)	
<input type="checkbox"/>	Wheel Speed(Right)	
Select All Clear Clear All		

Figure 9-8

- The Selected items are marked with ticks on the left.
 - The number on the right indicates sequence of the selected item.
 - Press the corresponding **FUNCTION** button [**Clear**] to unselect items, or press the corresponding **FUNCTION** button [**Select All**]/[**Clear All**] to select or unselect all items.
- 3) Press the **OK** button to confirm your selection and retrieve the selected live sensor data.
 - 4) Press the **ESC** button to return to the previous menu.

Utility

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

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

Utility	
1	Steering Angle Adjust
2	Records Clear
3	Counter Clear

Figure 9-9

Steering Angle Adjust

- 1) From the **Utility** function menu, select **Steering Angle Adjust** and press **OK**.
- 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.

Records Clear

- 1) From the Utility function menu use the **UP/DOWN** scroll button to select **Records Clear** and press the **OK** button.
- 2) The tool will display a list of records.

Input the car name	
Motor Overheat Record	Not Table Data
Motor Overheat Record	Not Table Data
Motor Overheat Record	Not Table
Clr.History	

Figure 9-10

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

Counter Clear

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

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

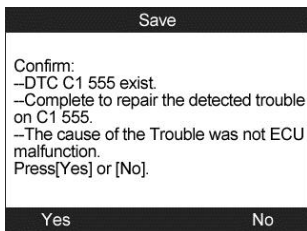


Figure 9-11

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

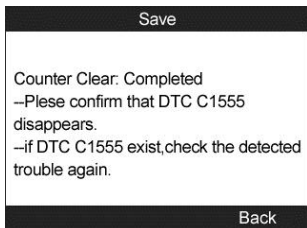


Figure 9-12

10 DPF Service

DPF Safety

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

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

In the event of the car being driven 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

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

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

- Turn the ignition off.
- Locate the vehicle's 16-pin Data Link Connector (DLC).
- Plug the scan tool cable connector into the vehicle's DLC.
- Turn the ignition on, and the engine may be off or running.
- Turn on the scan tool and wait for the **Main Screen** to appear.
- Select **DPF** in the **Main Screen**.
- Wait for a series of vehicle identification screens appears for user to identify the vehicle. On each screen that appears, use the **UP/DOWN** scroll button to select the correct option and then press the **OK** button. Do this until the vehicle is completely identified.

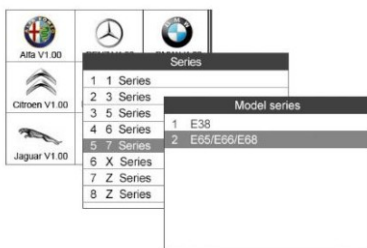


Figure 10-1

- The screen displays as below.

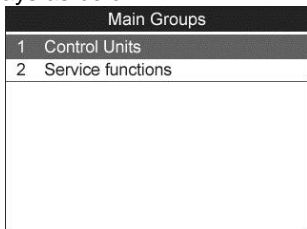


Figure 10-2

DPF Diagnostics

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

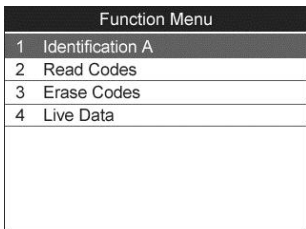


Figure 10-3

Read Codes

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

- 1) From the function menu use the **UP/DOWN** scroll button to select **Read Codes** and press the **OK** button.
- 2) View DTCs and their definitions on screen.

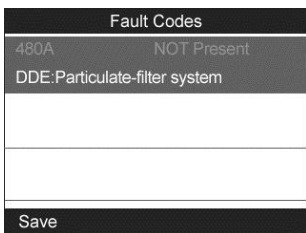


Figure 10-4

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

Erase Codes

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

- 1) Select **Erase Codes** from the function menu and press **OK**.
- 2) A warning message will come up asking for your confirmation.
- 3) Select **Yes** to continue or **No** to exit. When the command is sent, the tool will display a message as below.

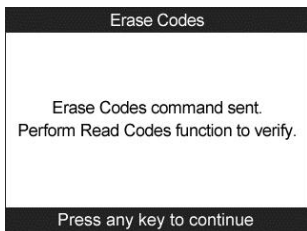


Figure 10-5

- 4) Perform **Read Codes** function to verify DTCs are erased completely.

Live Data

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

- 1) Select **Live Data** from the function menu and press **OK**.

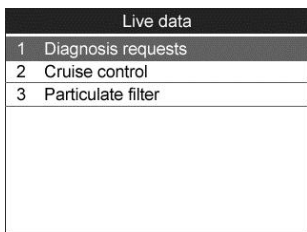


Figure 10-6

- 2) In this function list, **Diagnosis requests** retrieves signal data generated by the sensors, **Cruise control** shows the driving conditions, and **Particulate filter** displays the DPF system status information (Take **Particulate filter** as an example).
- 3) Select only the PIDs that you wish to display. Move to the desired item and press the corresponding **FUNCTION** button [**Select**] to choose.

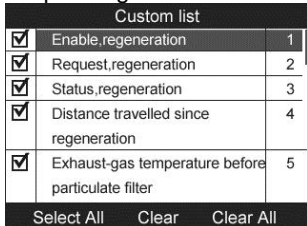


Figure 10-7

- The Selected items are marked with ticks on the left.
 - The number on the right indicates sequence of the selected item.
 - Press the corresponding **FUNCTION** button [**Clear**] to unselect items, or press the corresponding **FUNCTION** button [**Select All**]/[**Clear All**]to select or unselect all items.
- 4) Press the **OK** button to confirm your selection and retrieve the selected live sensor data.

Particulate filter	
Enable,regeneration	Regeneratio n enabled
Request regeneration	Regeneratio n in DDE requested
Pause One Graphic Save	

Figure 10-8

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

Identification A

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

- 1) Select **Identification A** from the function menu and press **OK**.
- 2) The tool will display the ECU information for your viewing and saving.

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 10-9

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

DPF Service Functions

Use the **UP/DOWN** scroll button to select **Service Functions** in the menu. 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 10-10

Starting Basic Inspection Quantity

This function enables you to start fuel delivery matching.

- 1) Select **Starting Basic Inspection Quantity** from the service functions menu 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.

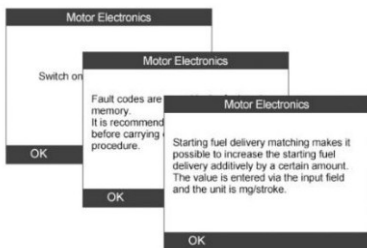


Figure 10-11

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

Motor Electronics		
Set value,start volume		
Adjustment:1541.0 Nm		
Selection:		
[1] Enter new value for adjustment		
[2] Reset adjustment to 0		
		[4]
[3]	[2]	[1]

Figure 10-12

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

- [1]** Enter new value for adjustment
- [2]** Reset adjustment to 0

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

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

Enter new value for adjustment

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

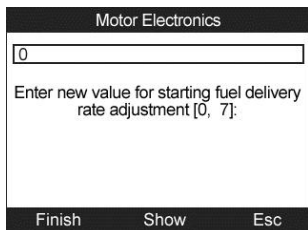


Figure 10-13

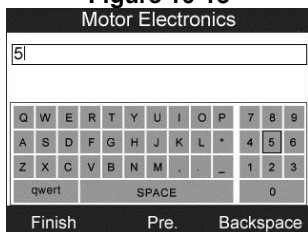


Figure 10-14

NOTE

The input data must be in the reasonable range. If it is out of range, a warning message "Permissible adjustment range exceeded." Will display.

Reset adjustment to 0

From the **Starting Basic Inspection Quantity** menu select [2] and press **OK**. The tool will automatically reset the value to zero.

Store data and exit

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

Injection Rate

This function enables you to adjust the injection volume.

- 1) Select **Injection rate** from the service functions menu 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. In this function, you can enter new value for matching, or reset matching to 100%.

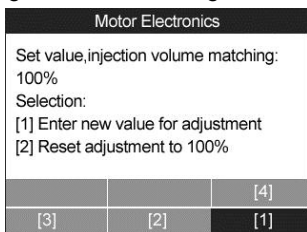


Figure 10-15

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

[1] Enter new value for adjustment

[2] Reset adjustment to 100%

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

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

Enter new value for adjustment

Select **[1]** from the **Injection rate** menu and press **OK**. The screen displays as below. You will need to input a new value for injection volume matching.

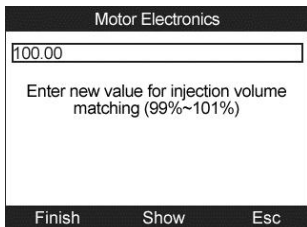


Figure 10-16

NOTE

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

Reset adjustment to 100%

Select **[2]** from the **Injection rate** menu and press **OK**. The tool will automatically reset the value to 100%.

Store data and exit

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

Injector Rate Adjustment

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

- 1) Select **Injector rate adjustment** from the menu 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. In this function, you can enter new value for each cylinder.

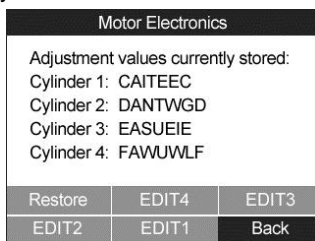


Figure 10-17

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

Enter new value for cylinder

From the **Injector rate adjustment** menu select one option and press the **OK** button. The screen displays as below. You will need to input a new value for Cylinder injector.

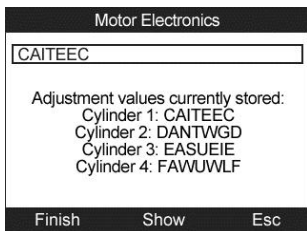


Figure 10-18

Restore the old value

Select **Restore** from the **Injector rate adjustment** menu and press **OK**. The tool will automatically retain the old value. When injector rate adjustment is completed, select **Back** and press **OK** to return to the previous menu.

Particle Filter Regeneration

This function enables you to perform the particle filter regeneration.

- 1) Select **Particle filter regeneration** from the menu and press **OK**.
- 2) The tool communicates with the vehicle and reads the fault codes memory. Follow the instructions to check the prerequisites before particle filter regeneration, such as the fuel, the time and driving style.

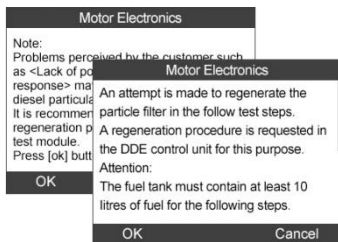


Figure 10-19

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

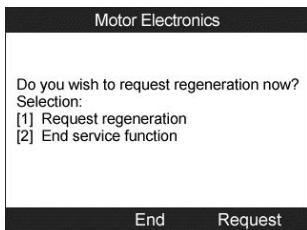


Figure 10-20

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

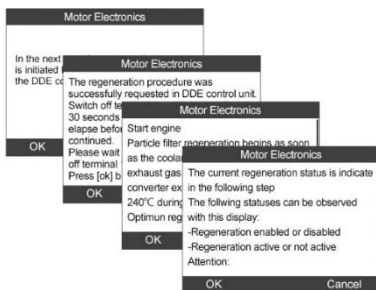


Figure 10-21

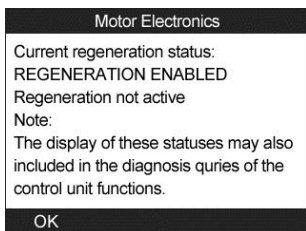


Figure 10-22

- 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.

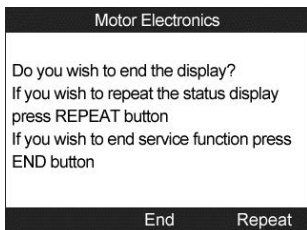


Figure 10-23

NOTE

1. 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.

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

Particle Filter Test

It is advisable to perform 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** from the menu and press **OK**.
- 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.

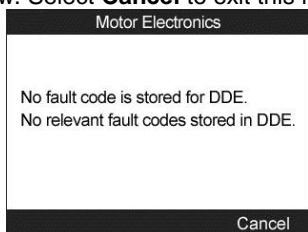


Figure 10-24

- 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.

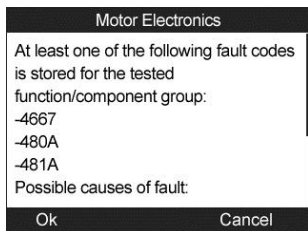


Figure 10-25

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

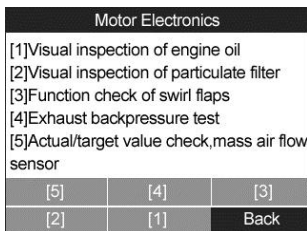


Figure 10-26

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

- [1]** Visual inspection of engine oil
- [2]** Visual inspection of particulate filter
- [3]** Function check of swirl flaps
- [4]** Exhaust backpressure test
- [5]** Actual/target value check-mass air flow sensor
- [Back]** Return to the previous menu

[1] Visual inspection of engine oil

- a) Select **[1]** from the menu and press the **OK** button.

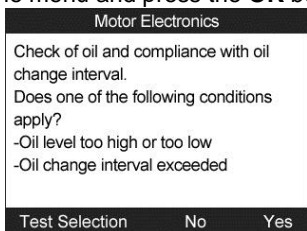


Figure 10-27

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

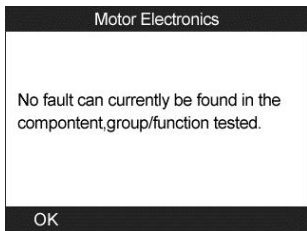


Figure 10-28

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

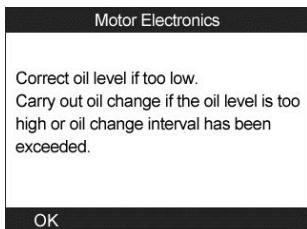


Figure 10-29

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

[2] Visual inspection of particulate filter

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

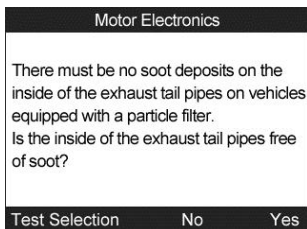


Figure 10-30

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

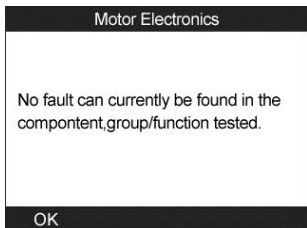


Figure 10-31

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

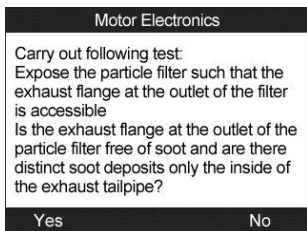


Figure 10-32

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

[3] Function check of swirl flaps

- a) Select **[3]** from the particle filter test menu and press **OK**.

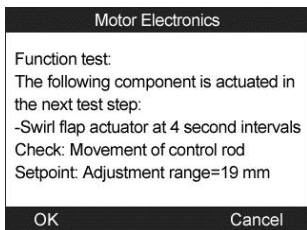


Figure 10-33

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

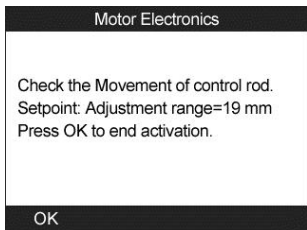


Figure 10-34

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

[4] Exhaust backpressure test

- a) Select **[4]** from the particle filter test menu and press **OK**.

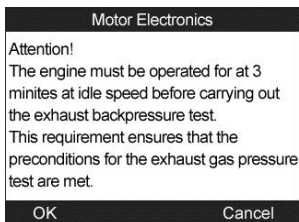


Figure 10-35

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

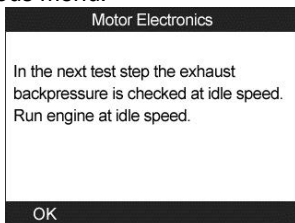


Figure 10-36

- c) 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 or **Cancel** to return to previous menu.

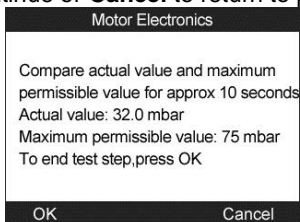


Figure 10-37

- 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.

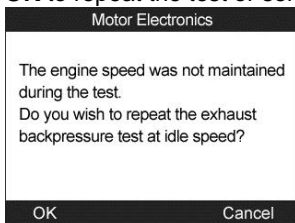


Figure 10-38

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

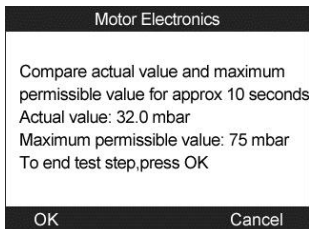


Figure 10-39

- 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.

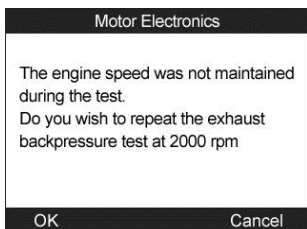


Figure 10-40

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

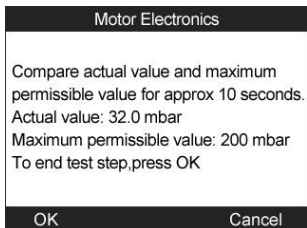


Figure 10-41

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

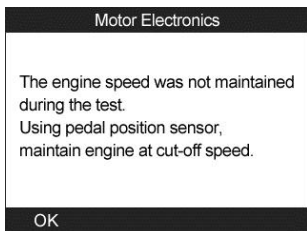


Figure 10-42

- f) The tool will submit a summary report for your confirmation.

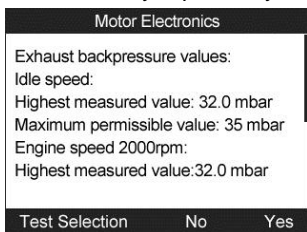


Figure 10-43

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

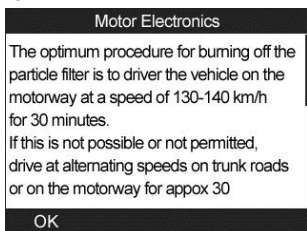


Figure 10-44

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

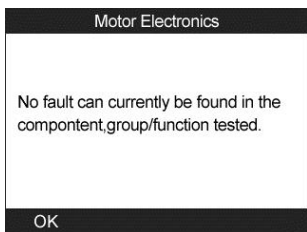


Figure 10-45

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

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

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

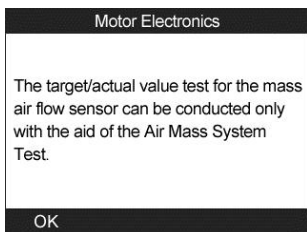


Figure 10-46

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

11 BMS

The **BMS (Battery Management System)** allows the scan tool to evaluate the battery charge state, monitor the close-circuit current, register the battery

replacement, activate the rest state of the vehicle, and charge the battery via the diagnostic socket.

 **NOTE**

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

General Battery Information

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

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

 **NOTE**

Reprogramming is not supported by the scan tool currently.

Battery Operation

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

Take **BMW** as an example.

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

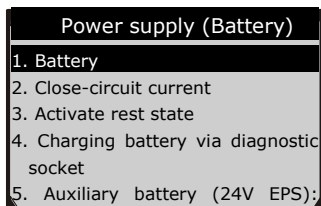


Figure 11-1

2. Select **Battery** from the **Power supply (Battery)** menu and press **OK** .

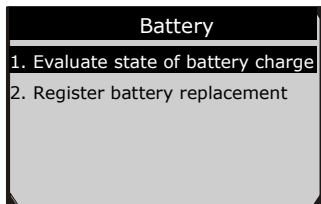


Figure 11-2

Evaluate State of Battery Charge

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

- a. Select **Evaluate state of battery charge** in the **Battery** menu and press the **OK** button.
- b. Read the information on the screen with the **UP/DOWN** scroll button and press the **OK** button to continue.

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

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

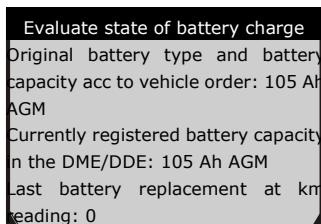


Figure 11-3

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

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

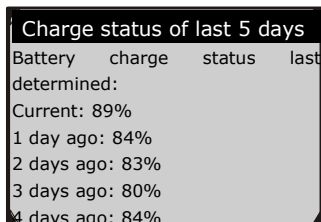


Figure 11-4

To display the battery charge status histogram:

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

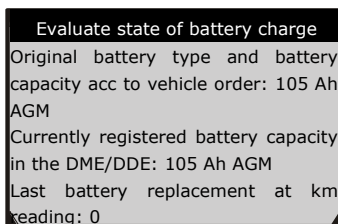


Figure 11-5

- 2) Read carefully the notice on the screen and press **OK** to continue.
- 3) Check the battery charge status histogram and press **OK** to end.

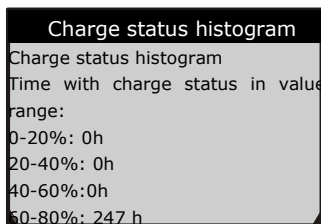


Figure 11-6

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

Register Battery Replacement

This option allows displaying the mileage reading of last battery replacement, registering the battery replacement after replacing a new battery and

informing the power management system that a new battery has been fitted to the vehicle.

If the battery change is not registered, the power management system will not function properly, which may not provide the battery with enough charging power to operate the car and limit the functions of individual electrical consumers.

To display the battery history:

- 1) Select **Register battery replacement** in the **Battery** menu and press the **OK** button.
- 2) Press the corresponding **FUNCTION** button [1] and a notice displays.

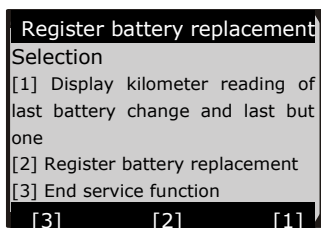


Figure 11-7

- 3) Read carefully the complete information with the **UP/DOWN** scroll button and press the **OK** button to continue.
- 4) Check the battery capacity and the battery replacement information on the screen.

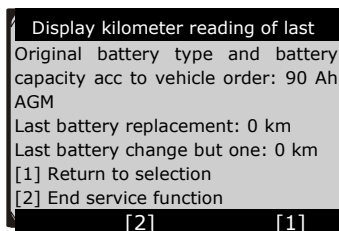


Figure 11-8

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

To register the battery replacement:

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

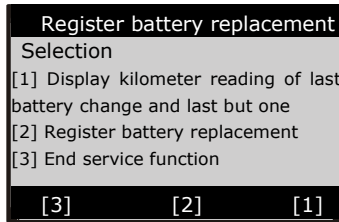


Figure 11-9

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

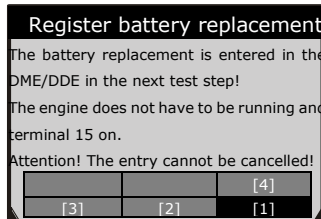


Figure 11-10

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

- [1]** Enter the battery replacement with the same capacity
- [2]** Enter the battery replacement with the different capacity
- [3]** Enter the battery replacement changing from the normal lead-acid battery (white housing) to AGM battery (black housing)
- [4]** End service function

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

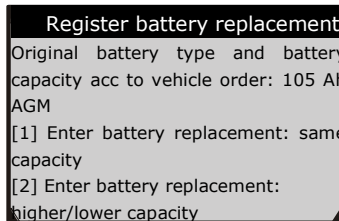


Figure 11-11

- ✓ Press the corresponding **FUNCTION** button **[Yes]** if the newly installed

battery is an original BMW component.

NOTE

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

- ✓ Read carefully the information with the **UP/DOWN** scroll button and press the **OK** button to continue.
- ✓ Press the corresponding **FUNCTION** button **[Yes]** if there is a data matrix code on the label of the newly installed battery.
- ✓ Enter the data matrix code on the battery label.

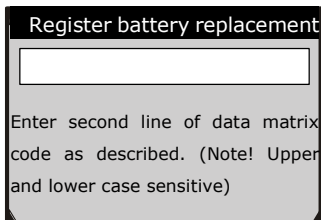


Figure 11-12



Figure 11-13

- ✓ Press the corresponding button **[Yes]** to save the data and continue.
- ✓ The screen displays as below when the battery replacement has been successfully registered in engine electronics (DME/DDE).

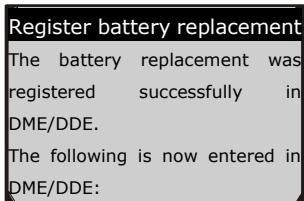


Figure 11-14

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

- If the replaced battery has a different capacity from the original one, select **[2]** with the **LEFT/RIGHT** scroll button and press the **OK** button to continue.
- Read carefully the information on the screen and press **OK** to continue.
- Press the corresponding **FUNCTION** button **[Yes]** if the newly installed battery is an original BMW component.
- Read carefully the information with the **UP/DOWN** scroll button and press the **OK** button to continue.
- Press the corresponding **FUNCTION** button **[No]** if the newly installed battery has no data matrix code.
- Enter the supplier number and terminal stamp at the negative terminal according to instructions displayed on the screen and save the entered values to continue.

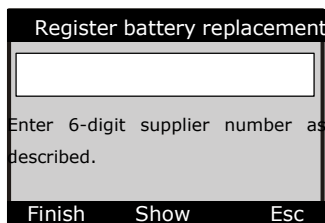


Figure 11-15

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

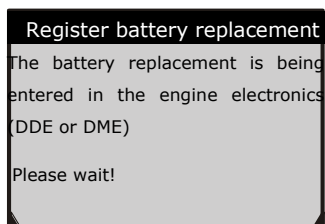


Figure 11-16

- When the replaced battery has been successfully registered in the engine electronics, press the **OK** button to end the service function.
- If the replaced battery has a different type from the original one, select **[3]** and press the **OK** button to continue.
- Refer to the steps described for registering the replaced battery with higher/lower capacity.

Close-circuit Current

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

Close-circuit Current Monitoring Evaluation

1. Use the **UP/DOWN** scroll button to select **Close-circuit current** option from the Power supply (Battery) menu and press the **OK** button.
2. Select **Evaluate close-circuit current** monitoring option and press the **OK** button to display the last 24 close-circuit current values.
3. Use the **UP/DOWN** scroll button to read the complete information and press the **OK** button to end service function.

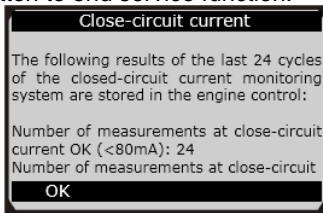


Figure 11-17

Activate Rest State

Power Down Command

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

- 1) Use the **UP/DOWN** scroll button to select **Activate rest state** option from the **Power supply (Battery)** menu and press the **OK** button.
- 2) Select the **Power down command** option and press the **OK** button.
- 3) Use the **UP/DOWN** scroll button to read the complete information.
- 4) Press the corresponding **FUNCTION** button [**Yes**] to send the power-down command, or press the corresponding **FUNCTION** button [**No**] to exit this function.
- 5) After the command is sent, follow the instructions on the screen and press the **OK** button to continue.
- 6) Press the **OK** button to end the service function.

Charging Battery via Diagnostic Socket

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

- 1) Use the **UP/DOWN** scroll button to select **Charging the battery via diagnostic socket** option from the **Power supply (Battery)** menu and press the **OK** button.
- 2) Read carefully the instructions on the screen and press the **OK** button to continue.
- 3) Press the corresponding **FUNCTION** button [1] and press the **OK** button to delete the transport mode of the control unit.
- 4) After deleting the transport mode, the screen will displays. Press the **OK** button to end service function.

Auxiliary Battery

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

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

To display the battery history:

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

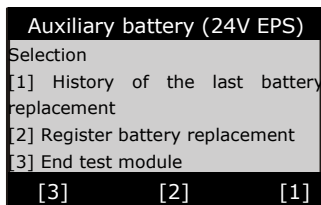


Figure 11-18

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

To register the battery replacement:

- 1) Press the corresponding **FUNCTION** button [2] to register the auxiliary battery replacement.
- 2) Read carefully the Help information on the screen and press the **OK** button to continue.
- 3) Press the corresponding **FUNCTION** button [Yes] if the newly installed battery is an original BMW component:
- 4) Press the corresponding **FUNCTION** button [Yes] if there is a data matrix code on the label of the newly installed battery.
- 5) Enter the data matrix code as described and save.

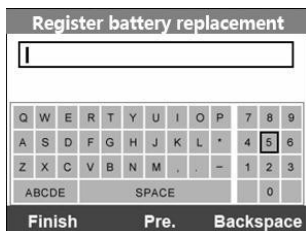


Figure 11-19

- 1) After you have finished the input, press the corresponding **FUNCTION** button [**Finish**] and if the information on the screen is correct, press the corresponding **FUNCTION** button [**Yes**] to continue.
- 2) The tool will begin the registration of the battery replacement.
- 3) When the auxiliary battery replacement has been registered successfully in the EPS, the screen will display.
- 4) Press the **OK** button to end the service function.

NOTE

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

12 Warranty and Service

Limited One Year Warranty

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

- 1) The sole responsibility of Autel under the Warranty is limited to either the repair or, at the option of Autel, replacement of the scan tool at no charge with Proof of Purchase. The sales receipt may be used for this purpose.
- 2) This warranty does not apply to damages caused by improper use, accident, flood, lightning, or if the product was altered or repaired by anyone other than the Manufacturer's Service Center.
- 3) Autel shall not be liable for any incidental or consequential damages arising from the use, misuse, or mounting of the scan tool. Some states do not allow limitations on how long an implied warranty lasts, so the above limitations may not apply to you.
- 4) All information in this manual is based on the latest information available at the time of publication and no warranty can be made for its accuracy or completeness. Autel reserves the right to make changes at any time without notice.

Service Procedures

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

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