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

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Safety Information

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

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

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

Safety Messages

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



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



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

Safety Instructions

The safety messages herein cover situations Autel is aware of. Autel cannot know, evaluate or advise you as to all of the possible hazards. You must be certain that any condition or service procedure encountered does not jeopardize your personal safety.



DANGER: When an engine is operating, keep the service area WELL VENTILATED or attach a building exhaust removal system to the engine exhaust system. Engines produce carbon monoxide, an odorless, poisonous gas that causes slower reaction time and can lead to serious personal injury or loss of life.

**Do Not Turn the Volume Up Too Loud When Using Headphones**

Listening at high volumes that over-stimulate the ear for long periods of time may result in loss of hearing.

**SAFETY WARNINGS:**

- 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, for exhaust gases are poisonous.
- Put the transmission in PARK (for automatic transmission) or NEUTRAL (for manual transmission) and make sure the parking brake is engaged.
- Put blocks in front of the drive wheels and never leave the vehicle unattended while testing.
- Be extra cautious when working around the ignition coil, distributor cap, ignition wires and spark plugs. These components create hazardous voltages when the engine is running.
- Keep a fire extinguisher suitable for gasoline, chemical, and electrical fires nearby.
- Do not connect or disconnect any test equipment while the ignition is on or the engine is running.
- Keep the test equipment dry, clean, free from oil, water or grease. Use a mild detergent on a clean cloth to clean the outside of the equipment as necessary.
- Do not drive the vehicle and operate the test equipment at the same time. Any distraction may cause an accident.
- Refer to the service manual for the vehicle being serviced and adhere to all diagnostic procedures and precautions. Failure to do so may result in personal injury or damage to the test equipment.
- To avoid damaging the test equipment or generating false data, make sure the vehicle battery is fully charged and the connection to the vehicle DLC is clean and secure.
- Do not place the test equipment on the distributor of the vehicle. Strong electro-magnetic interference can damage the equipment.

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Chapter 1 Using This Manual

This manual contains device usage instructions.

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

1.1 Conventions

The following conventions are used.

1.1.1 Bold Text

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

Example:

- Tap **OK**.

1.1.2 Notes

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

1.1.3 Important

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

1.1.4 Hyperlink

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

1.1.5 Procedure

An arrow icon indicates a procedure.

Example:

➤ **To use the camera:**

- 1 Tap the **Camera** button. The camera screen opens.
- 2 Focus the image to be captured in the view finder.
- 3 Tap the blue circle. The view finder now shows the captured picture and auto-saves the taken photo.

Chapter 2 General Introduction

The MaxiSys MS906BT/MaxiSys MS906TS is an advanced smart wireless diagnostic device providing specialized automotive diagnostic service for customers. Featuring the powerful Samsung Exynos 5260 6-core processor (1.3 GHz quad-core ARM Cortex-A7 + 1.7 GHz dual-core ARM Cortex-A15), an 8.0 inch LED capacitive touch screen, and long-distance wireless communication, based on the multitasking mobile operating system, and combined with the best possible coverage of OE-level diagnostics, the MaxiSys MS906TS/MS906BT performs comprehensive vehicle diagnostics and analysis efficiently. With the integrated TPMS module, the MaxiSys MS906TS also provides comprehensive TPMS solutions.

There are two main components to the MaxiSys system:

- MaxiSys System Display Tablet -- the central processor and monitor for the system
- Vehicle Communication Interface (VCI) -- the device for accessing vehicle data

This manual describes the construction and operation of both the devices and how they work together to deliver diagnostic solutions.

2.1 MaxiSys System Display Tablet

2.1.1 Functional Description

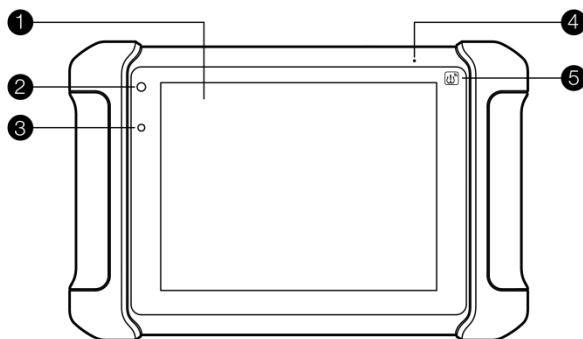


Figure 2-1 *Display Tablet Front View*

1. 8.0" LED Capacitive Touch Screen
2. Power LED – indicates battery level & charging or system status

3. Ambient Light Sensor – detects ambient brightness
4. Microphone
5. TPMS Service Symbol – indicates the position of the embedded TPMS antenna (for MaxiSys MS906TS only)

The power LED displays different colors in response to the following scenarios:

A. Green

- Illuminates green when the Display Tablet is charging and the battery level is above 90%.

B. Yellow

- Illuminates yellow when the Display Tablet is charging and the battery level is below 90%.

C. Red

- Illuminates red when the Display Tablet is powered on and the battery level is below 15%.

D. Blue

- Illuminates blue when the MaxiSys system is fault.

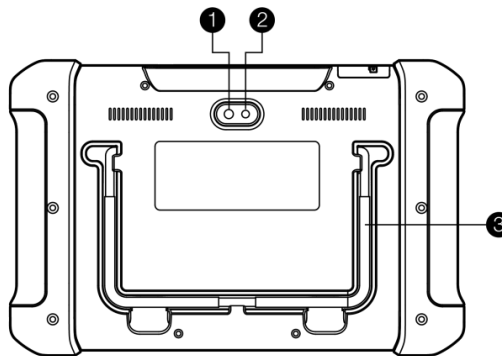


Figure 2-2 *Display Tablet Back View*

1. Camera Lens
2. Camera Flash
3. Collapsible Stand – extends from the back to allow hands-free viewing of the Display Tablet at a 30-degree angle

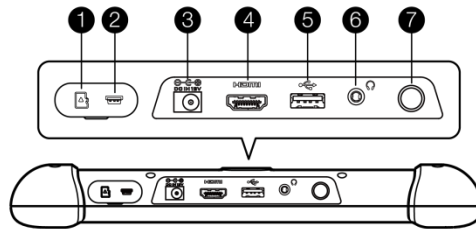


Figure 2-3 *Display Tablet Top View*

1. Mini SD Card Slot - holds the mini SD Card
2. Mini USB OTG Port
3. DC Power Supply Input Port - Connects the 12 volt power adapter to charge.
4. HDMI (high-definition multimedia interface) Port
5. USB Port
6. Headset Jack (3-Band 3.5mm)
7. Lock/Power Button – turns the device on & off with long press, or locks the screen with short press

2.1.2 Power Sources

The Display Tablet can receive power from any of the following sources:

- Internal Battery Pack
- AC/DC Power Supply
- Vehicle Power Supply

Internal Battery Pack

The Display Tablet can be powered with the internal rechargeable battery, which if fully charged can provide sufficient power for about 14 hours of continuous operation.

AC/DC Power Supply

The Display Tablet can be powered from a wall socket using the AC/DC power adapter. The AC/DC power supply also charges the internal battery pack.

Vehicle Power

The Display Tablet can be powered from the cigarette lighter or other suitable power port on the test vehicle through a direct cable connection. The vehicle power cable connects to the DC power supply port on the top side of the display unit.

2.1.3 Technical Specifications

Item	Description
Operating System	Android™ 4.4.2, KitKat
Processor	Samsung Exynos T5260 6-Core Processor (1.3 GHz quad-core ARM Cortex-A7 + 1.7 GHz dual-core ARM Cortex-A15)
Memory	2 GB RAM & 32 GB ROM
Display	8.0 inch LED capacitive touch screen with 1024x768P resolution
Connectivity	• Wi-Fi (802.11 b/g/n) • USB: 2.0 • Mini USB 2.0 • Wireless BT V2.1+EDR, Class1 • HDMI 1.4a • SD Card (support up to 32GB)
Camera (rear)	Rear-facing, 8.0 Megapixel, AF with Flashlight
Sensors	Gravity Accelerometer, Ambient Light Sensor (ALS)
Audio Input/Output	• Microphone • Single Speakers • 3-Band 3.5 mm stereo/standard headset jack
Power and Battery	• 10,000 mAh 3.7 V lithium-polymer battery • Charging via 12 V AC/DC power supply
Input Voltage	12 V (9-35 V)
Power Consumption	5 W

Item	Description
Operating Temperature	-10 to 55°C (14 to 131°F)
Storage Temperature	-20 to 70°C (-4 to 158°F)
Housing	Strong plastic housing with protective rubber boot
Dimensions (W x H x D)	270.8 mm (10.0") x 176.0 mm (6.9") x 36.0 mm (1.4")
Weight	NW: 1.10 kg (2.42 lb.) (for 906TS)
Supported Automotive Protocols	ISO 9142-2, ISO 14230-2, ISO 15765-4, K-Line, L-Line, Flashing Code, SAE-J1850 VPW, SAE-J1850 PWM, CAN ISO 11898, Highspeed, Middlespeed, Lowspeed and Singlewire CAN, GM UART, UART Echo Byte Protocol, Honda Diag-H Protocol, TP 2.0, TP 1.6, SAE J1939, SAE J1708, Fault-Tolerant CAN

2.2 VCI – Wireless Diagnostic Interface

The wireless diagnostic interface MaxiVCI V100 is a small vehicle communication interface (VCI) used to connect to a vehicle's diagnostic connector (DLC) and connect with the Display Tablet, as well as standalone PC, as a vehicle communication interface (VCI) for vehicle data transmission.

2.2.1 Functional Description

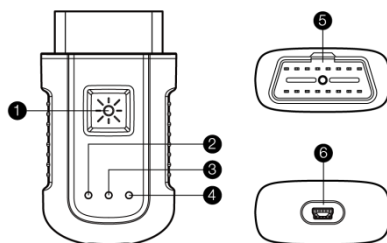


Figure 2-4 MaxiVCI V100 Wireless Diagnostic Interface

1. Lighting Push Button – presses to turn on the white LED in the vehicle data connector socket
2. Power LED – indicates power and system status
Green: illuminates solid green when powered on.
Amber: flashes green and amber automatically when performing firmware update.
Red: illuminates red automatically when powered up, and flashes red when system failure occurs.
3. Vehicle LED - flashes green when communicating with the vehicle's system
4. Connection Mode LED - illuminates solid green when the device is properly connected with the Display Tablet or PC via the USB cable, or illuminates solid blue via wireless BT connection
5. Vehicle Data Connector (16-pin)
6. USB Port

Communication

The Wireless Diagnostic Interface supports both the wireless BT and the USB communication. It can transmit vehicle data to the Display Tablet with or without a physical connection. The working range of the transmitter through BT communication is about 164 feet (about 50 m). A signal lost due to moving out of range automatically restores itself when the Display Tablet is brought closer to the VCI unit.

2.2.2 Technical Specifications

Item	Description
Communications	• BT V.2.1 + EDR • USB 2.0
Wireless Frequency	2.4 GHz
Input Voltage Range	12 VDC
Supply Current	150 mA @ 12 VDC
Operating Temperature	0°C to 50°C (ambient)
Storage Temperature	-20°C to 70°C (ambient)

Dimensions (L x W x H)	87.0 mm (3.43") x 52.0 mm (2.05") x 24.5 mm (0.96")
Weight	0.076 kg (0.168 lb.)
Built-in Battery	3.7V Lithium Battery
Light	White LED

2.2.3 Power Sources

The Wireless Diagnostic Interface operates on 12-volt vehicle power, which it receives through the vehicle data connection port. The unit powers on whenever it is connected to an OBD II/EOBD compliant data link connector (DLC).

2.3 Accessory Kit

2.3.1 OBD I Adapters

The OBD I adapters are for Non-OBD II vehicles. The adapter used depends on the type of vehicle being tested. The most common adapters are shown below. (Benz-14 is for European unit only and Chrysler-16 is for American unit only.)



Benz-14



Chrysler-16



BMW-20



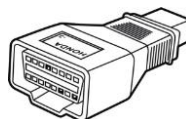
Kia-20



Nissan-14



GM/Daewoo-12



Honda-3



VW/Audi-2+2



Mitsubishi/
Hyundai -12+16



Benz-38



PSA-2



Fiat-3

2.3.2 Other Accessories



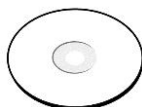
Mini USB Cable

Connects the Display Tablet to the PC or the VCI unit.



AC/DC External Power Adapter

Connects the Display Tablet to the external DC power port for power supply.



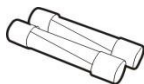
Compact Disc (CD)

Includes the User Manual, Printing Services, VCI Update Agent, etc.



Cigarette Lighter

Provides power to the Display Tablet through connection to the vehicle's cigarette lighter receptacle.



Lighter Fuse

A safety device for the cigarette lighter.

Chapter 3 Getting Started

Make sure the Display Tablet has sufficient battery level or is connected to the DC power supply (see [2.1.2 Power Sources](#) on page 5).

NOTE: The images and illustrations depicted in this manual may differ from the actual ones.

3.1 Powering Up

Press the Lock/Power button on the top right side of the Display Tablet to switch the unit on. The system boots up, and shows the lock screen. Pressing the inner ring with a Lock icon at the center displays 3 entry options:

1. **Unlock** – Drag the inner ring to the right edge of the circle to enter the Android System’s Home Screen.
2. **MaxiSys** – Drag the inner ring to the top edge of the circle to enter the MaxiSys Job Menu.
3. **Camera** – Drag the inner ring to the left edge of the circle to launch the camera



Figure 3-1 Sample MaxiSys MS906TS Job Menu

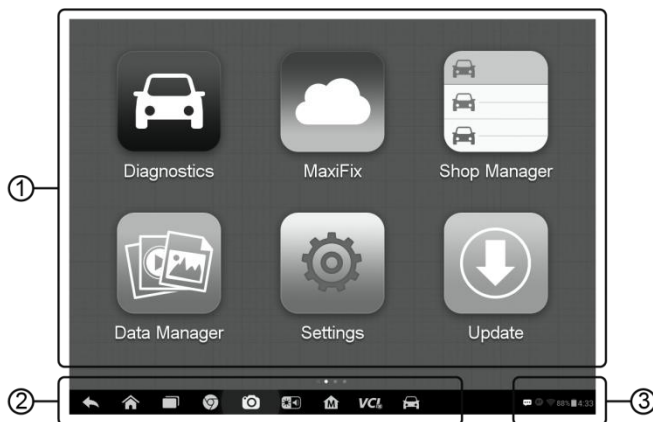


Figure 3-2 Sample MaxiSys MS906BT Job Menu

1. Application Buttons
2. Locator and Navigation Buttons
3. Status Icons

NOTE: The screen is locked by default when you first turn on the Display Tablet. It is recommended to lock the screen to protect the information in the system and reduce the power consumption.

Almost all operations on the Display Tablet are controlled through the touch screen. The touch screen navigation is menu driven, which allows you to quickly locate the test procedure, or data that you need, through a series of choices and questions. Detailed descriptions of the menu structures are found in the chapters for the various applications.

3.1.1 Application Buttons

The Application buttons configure the MaxiSys for the type of operation or activity to be performed. The table below gives brief descriptions of the available applications.

Tap on the screen to select an application from the Job Menu.

Table 3-1 Applications

Button	Name	Description
	Diagnostics	Configures the unit to operate as a diagnostic tool. See Diagnostics Operations on page 19.
	Data Manager	Opens the organization system for saved data files. See Data Manager Operations on page 84.
	TPMS	Launches the TPMS service program directly. See TPMS Service Operations on page 55. (For MaxiSys MS906TS)
	MaxiFix	Launches the MaxiFix platform which provides the most compatible and abundant repair techniques and diagnostics database. See MaxiFix Operations on page 67.
	Settings	Allows you to set the MaxiSys system settings, and to view the general information about the Display Tablet. See Settings Operations on page 89.
	Shop Manager	Allows you to edit and save workshop information and customer data, as well as reviewing test vehicle history records. See Shop Manager Operations on page 76.
	Update	Checks for the latest update available for the MaxiSys system, and performs updating procedures. See Update Operations on page 93.
	VCI Manager	Establishes and manages BT connection to the VCI device. See VCI Manager Operations on page 96.
	Remote Desk	Configures your unit to receive remote support using the TeamViewer application program. See Remote Desk Operations on page 111.
	Support	Launches the Support platform which synchronizes Autel's on-line service base station with the MaxiSys tablet. See Support Operations on page 99.

Button	Name	Description
	Training	Allows you to store and play technical tutorial and training videos about the device usage or vehicle diagnostic techniques. See Training Operations on page 109.
	Quick Link	Provides associated website bookmarks to allow quick access to product update, service, support and other information. See Quick Link Operations on page 113.
	MaxiScope	Configures the unit to operate as an automotive oscilloscope to perform electrical and electronic circuit tests and monitor signal activities. See Oscilloscope Operations on page 114.
	Digital Inspection	Configures the unit to operate as a video scope device by connecting to an Imager head cable for close vehicle inspections. See Digital Inspection Operations on page 131.

3.1.2 Locator and Navigation Buttons

Operations of the Navigation buttons at the bottom of the screen are described in the table below:

Table 3-2 *Locator and Navigation Buttons*

Button	Name	Description
	Locator	Indicates the location of the screen. Swipe the screen left or right to view the previous or next screen.
	Back	Returns to the previous screen.
	Android Home	Returns to Android System's Home screen.
	Recent Apps	Displays a list of applications that are currently working. To open an app, touch it. To remove an app, swipe it to the right.
	Chrome	Launches the Android built-in browser.

Button	Name	Description
	Camera	Opens the camera with short press; takes and saves screenshot image with long press. The saved files are auto-stored in the Data Manager application for later reviews. See Data Manager Operations on page 84.
	Display & Sound	Allows you to adjust the brightness of the screen and the volume of the audio output.
	MaxiSys Home	Returns to MaxiSys Job Menu.
	VCI	Opens the VCI Manager application. The tick icon at the bottom right corner indicates the Display Tablet is communicating with the VCI device, otherwise a cross icon displays.
	MaxiSys Shortcut	Returns to the MaxiSys operation interface from other Android applications.
	TPMS Shortcut	Returns to the TPMS service operation interface from other applications. (For MS906TS)

➤ **To use the camera:**

1. Tap the **Camera** button. The camera screen opens.
2. Focus the image to be captured in the view finder.
3. Tap the inner blue circle. The view finder now shows the captured picture and auto-saves the taken photo.
4. Tap the thumbnail image on the top right corner of the screen to view the stored image.
5. Tap the **Back** or **Home** button to exit the camera application.

Refer to Android documents for additional information.

3.1.3 System Status Icons

As the Display Tablet is working with the Android operating system, you may refer to Android documents for more information.

By tapping on the bottom right corner, a Shortcuts Panel will be displayed, on which you are allowed to set various system settings of the tablet. Operations of each button on the panel are described in the table below:

Table 3-3 *Shortcuts Panel Buttons*

NOTE: The shortcuts buttons will be highlighted when enabled, and dimmed when disabled.

Button	Name	Description
	Calculator	Launches calculator when pressed.
	Clock	Launches clock when pressed.
	BT	Enables/disables BT when pressed.
	Wi-Fi	Enables/disables Wi-Fi when pressed.
	Torch	Turns on/off the torch when pressed.
	Auto Rotate	Enables/disables auto-rotate screen when pressed.
	Airplane Mode	Enables/disables Airplane Mode when pressed.
	System Settings	Launches the Android System Settings interface when pressed.

3.2 Powering Down

All vehicle communications must be terminated before shutting down the Display Tablet. A warning message displays if you attempt to shut down the Display Tablet while the VCI unit is communicating with the vehicle. Forcing a shut-down while communicating may lead to ECM problems on some vehicles. Exit the Diagnostics application before powering down.

➤ **To power down the display tablet:**

1. Press and hold the Lock/Power Button.
2. Tap **Power off** option.

3. Tap **OK**; the tablet will turn off in a few seconds.

3.2.1 Reboot System

In case of system crash, press and hold the Lock/Power button for 8 seconds to reboot the system.

3.3 Installing Computer Software

The MaxiSys MS906BT/MS906TS Diagnostic Platform allows you to print the information needed for your convenience. To realize the printing function, you need to install the printer driver program.

➤ To install the printer driver program

1. Insert the included CD into the CD-ROM of the computer and open the CD folder.
2. Double click on **Autel Run.exe** item.
3. Click the **MaxiSys Printer** icon in the MaxiSys PC Suite screen.
4. Select the installation language and the printer driver installation wizard will load momentarily.
5. Follow the wizard instructions on the screen and Click **Next** to continue.
6. Click on **Install** and the printer driver program will be installed onto the computer.
7. Click on **Finish** to complete the whole installation procedure.

NOTE: The MaxiSys Printer runs automatically after the installation.

3.3.1 Printing Operation

This section describes how to receive file from the MaxiSys tablet and perform printing through the computer:

➤ To perform printing through the computer

1. Install the printer driver to the computer.
2. Before printing make sure the Display Tablet is connected to the

computer network, either via WiFi or LAN. See 9.1.3 *Printing Setting* on page 90 for more information.

3. Run the MaxiSys Printer program on the computer to open up the printer interface.
4. Click **Test Print** to make sure the printer is working successfully.
5. Tap the **Print** button on the toolbar. A temporary document will be created and sent to the computer for printing.
6. The MaxiSys Printer will print the received document automatically when the **Auto Print** option is selected.

If you need to print the document later, click **Open PDF file** and select the document, and double click the **Print** button on the MaxiSys Printer interface to start the printing.

NOTE: Make sure the computer installed with the Printing Driver program is connected to a printer.

Chapter 4 Diagnostics Operations

By establishing a data link to the electronic control systems of the vehicle being serviced through the VCI device, the Diagnostics application allows you to retrieve diagnostic information, view live data parameters, and perform active tests. The Diagnostics application can access the electronic control module (ECM) for various vehicle control systems, such as engine, transmission, antilock brake system (ABS), airbag system (SRS) and more.

4.1 Establishing Vehicle Communication

The Diagnostics operations require connecting the MaxiSys Diagnostic Platform to the test vehicle through the VCI device and test adapters (for non-OBD II vehicles). To establish proper vehicle communication to the Display Tablet, you need to perform the following steps:

1. Connect the VCI device to the vehicle's DLC for both communication and power source.
2. Connect the VCI device to the Display Tablet via BT pairing or USB connection.
3. When these are done, check the VCI navigation button at the bottom bar on the screen, if the button displays a green tick icon at the lower right corner, the MaxiSys Mini diagnostic platform is ready to start vehicle diagnosis.

4.1.1 Vehicle Connection

The method used to connect the VCI device to a vehicle's DLC depends on the vehicle's configuration as follows:

- A vehicle equipped with an On-board Diagnostics Two (OBD II) management system supplies both communication and 12-volt power through a standardized J-1962 DLC.
- A vehicle not equipped with an OBD II management system supplies communication through a DLC connection, and in some cases supplies 12-volt power through the cigarette lighter receptacle or a connection to the vehicle battery.

OBD II Vehicle Connection

This type of connection only requires the VCI device without any additional adapter.

➤ **To connect to an OBD II vehicle**

1. Insert the Vehicle Data Connector on the MaxiVCI V100 into the vehicle's DLC, which is generally located under the vehicle dash.

NOTE: The vehicle's DLC is not always located under the dash; refer to the user manual of the test vehicle for additional connection information.

Non-OBD II Vehicle Connection

This type of connection requires both the VCI device and a required OBD I adapter for the specific vehicle being serviced.

➤ **To connect to a Non-OBD II Vehicle**

1. Locate the required OBD I adapter and connect its 16-pin jack to the Vehicle Data Connector on the MaxiVCI V100.
2. Connect the attached OBD I adapter to the vehicle's DLC.

NOTE: Some adapters may have more than one adapter or may have test leads instead of an adapter. Whatever the case, make the proper connection to the vehicle's DLC as required.

The Display Tablet can be powered from the cigarette lighter when necessary.

➤ **To connect the cigarette lighter**

1. Plug the DC power connector of the cigarette lighter into the DC power supply input port on the Display Tablet.
2. Connect the male connector of the cigarette lighter into the vehicle's cigarette lighter receptacle.

4.1.2 VCI Connection

After the MaxiVCI V100 is properly connected to the vehicle, and the Power LED on the VCI device illuminates solid green, it indicates that the MaxiVCI V100 is ready to establish communication with the Display Tablet.

The Wireless Diagnostic Interface MaxiVCI V100 supports 2 communication methods with the Display Tablet, wireless BT and USB.

Pairing Up via BT

BT pairing is recommended as the first choice for the communication between the Display Tablet and the VCI device. The working range for BT

communication is about 164 feet (about 50 m); this means you can perform vehicle diagnosis freely around the workshop with greater convenience.

If you use more than one VCI device to connect to the test vehicles, you can perform vehicle diagnosis on various vehicles conveniently, by pairing the Display Tablet separately to each of the VCI devices connected to the different test vehicles, via wireless BT, without the need to repeat the plugging and unplugging procedure, which is unavoidable through traditional wired connection, thus saves you more time and provides more efficiency.

➤ **To pair up the Display Tablet with the MaxiVCI V100 via BT**

1. If not already done, power up the Display Tablet.
2. Select the **VCI Manager** application from the MaxiSys Job Menu.
3. When the **VCI Manager** application is opened, the Display Tablet automatically starts scanning for available VCI devices around for BT pairing. The found VCI devices are listed in the Setting section on the right side of the screen.

NOTE: If no VCI device is found, this may indicate that the signal strength of the transmitter is too weak to be detected. In this case, try to get closer to the device, or reposition the VCI device, and remove all possible objects that cause signal interference. When these are done, tap the **Scan** button at the top right corner to start searching again.

4. The device name appeared on the Display Tablet may display as Maxi suffixed with a serial number. Select the required device for pairing.
5. When pairing is successfully done, the connection status displayed to the right of the device name is shown as **Paired**.
6. Wait for a few seconds, and the VCI button on the system Navigation bar at the bottom of the screen shall display a green tick icon, and the Connection Mode LED on the MaxiVCI V100 illuminates solid blue, indicating the Display Tablet is connected to the VCI device, and is ready to perform vehicle diagnosis.

Refer to [11.1 BT Pairing](#) on page 96 for additional information.

USB Cable Connection

The USB cable connection is a simple and quick way to establish communication between the Display Tablet and the MaxiVCI V100. After properly connecting the USB cable from the tablet to the VCI device, the VCI navigation button at the bottom bar of the screen shows a green tick icon in a

few seconds, and the Connection Mode LED on the MaxiVCI V100 illuminates solid green, indicating the connection between the devices is successful. The MaxiSys diagnostic platform is now ready to perform vehicle diagnosis.

NOTE: When both the communication methods are applied at the same time, the MaxiSys system will use the USB communication as the default priority.

4.1.3 No Communication Message

- A. If the Display Tablet is not connected to the VCI device correctly, an “Error” message may display. This indicates that the Display Tablet cannot access to the vehicle control module. In this case, you need to do the following check-ups:
- Check if the VCI device is powered up.
 - In case of wireless connection, check if the network is configured correctly, or if the right VCI device has been paired.
 - If during the diagnosis process, the communication is suddenly interrupted due to the loss of signal, check if there is any object that causes signal interruption.
 - Check if the VCI device is properly positioned.
 - Try standing closer to the VCI device to obtain more stable signals, and faster communication speed.
 - In case of wired connection, check the cable connection between the Display Tablet and the VCI device.
 - Check if the Connection Mode LED on the VCI device is illuminated for BT or USB.
 - Check if the Power LED on the VCI device is flashing red, this may indicate there is a hardware problem with the VCI device, in this case contact for the technical support.
- B. If the VCI device is unable to establish a communication link, a prompt message displays with check instructions. The following conditions are the possible causes:
- The VCI device is unable to establish a communication link with the vehicle.
 - You’ve selected a system for testing that the vehicle is not equipped with.

- There is a loose connection.
- There is a blown vehicle fuse.
- There is a wiring fault on the vehicle or the adapter.
- There is a circuit fault in the adapter.
- Incorrect vehicle identification was entered.

4.2 Getting Started

Prior to first use of the Diagnostics application, make sure the VCI device has been synchronized with the Display Tablet to establish a communication link. See [VCI Manager Operations](#) on page 96.

4.2.1 Vehicle Menu Layout

When the VCI device is properly connected to the vehicle, and paired to the Display Tablet, the platform is ready to start the vehicle diagnosis. Tap on the **Diagnostics** application button on the MaxiSys Job Menu, the screen then opens the Vehicle Menu.



Figure 4-1 Sample Vehicle Menu Screen

1. Top Toolbar Buttons
2. Manufacturer Buttons

Top toolbar Buttons

The operations of the Toolbar buttons at the top of the screen are listed and described in the table below:

Table 4-1 *Top Toolbar Buttons*

Button	Name	Description
	Home	Returns to the MaxiSys Job Menu.
	VIN Scan	Touching this button opens a dropdown list; tap Auto Detect for auto VIN detection; tap Manual Input to enter VIN manually.
	All	Displays all the vehicle makes in the vehicle menu.
	History	Displays the stored test vehicle history records. This option provides you direct access to the previously tested vehicle recorded during previous test sessions. See 7.1 Vehicle History on page 77.
	USA	Displays the USA vehicle menu.
	Europe	Displays the European vehicle menu.
	Asia	Displays the Asian vehicle menu.
	Search	Touching this button opens the virtual keyboard, allowing you to manually enter the specific vehicle make required.
	Cancel	Touching this button exits the search screen, or cancels an operation.

Manufacturer Buttons

The Manufacturer buttons display the various vehicle logos and the brand names. Select the required manufacturer button after the VCI device is properly connected to the test vehicle to start a diagnostic session.

Tapping the small envelop icon beside each vehicle brand name will open a PDF document displaying the function list of the diagnostic software, including the applicable models and functions.

NOTE: The Update icon displayed on the upper right of the vehicle brand name indicates there is available update for the vehicle. Tap this icon to enter the Update application directly.

4.3 Vehicle Identification

The MaxiSys diagnostic system supports four methods for Vehicle Identification.

1. Auto VIN Scan
2. Manual VIN Input
3. Manual Vehicle Selection
4. OBD Direct Entry

4.3.1 Auto VIN Scan

The MaxiSys diagnostic system features the latest VIN-based Auto VIN Scan function to identify CAN vehicles in just one touch, which allows the technician to quickly detect vehicles, scan all the diagnosable ECUs on every vehicle and run diagnostics on the selected system.

➤ **To perform Auto VIN Scan**

1. Tap the **Diagnostics** application button from the MaxiSys Job Menu. The Vehicle Menu displays. (**Figure 4-1**)
2. Tap the **VIN Scan** button on the top toolbar.
3. Select **Auto Detect**. The tester starts VIN scanning on the vehicle's ECU. Once the test vehicle is successfully identified, the system will guide you to the Vehicle Diagnostics screen directly.

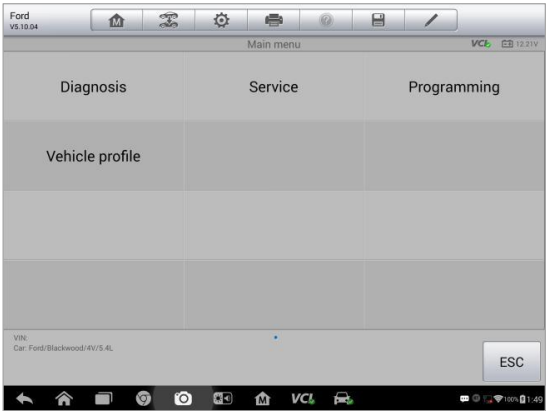


Figure 4-2 Sample Vehicle Diagnostics Screen

In some cases when users have selected the vehicle brand instead of performing Auto VIN Scan in the first place, the system still provides an option for vehicle VIN scan.

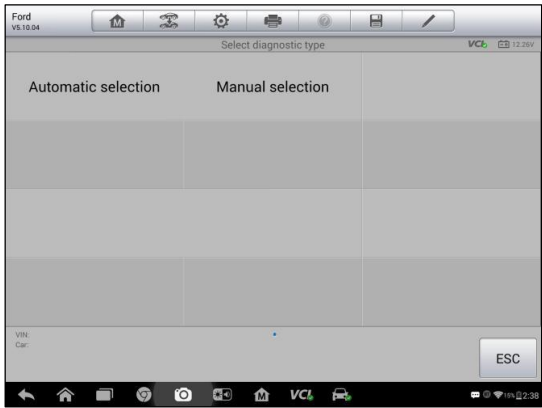


Figure 4-3 Sample Vehicle Selection Screen

Select **Automatic Selection** and the system will proceed to acquire VIN information automatically or allow users to input the VIN manually.

4.3.2 Manual VIN Input

For some vehicles that do not support the Auto VIN Scan function, the MaxiSys diagnostic system allows you to enter the vehicle VIN manually.

➤ **To perform Manual VIN Input**

1. Tap the **Diagnostics** application button from the MaxiSys Job Menu. The Vehicle Menu displays.
2. Tap the **VIN Scan** button on the top toolbar.
3. Select **Manual Input**.
4. Tap the input box and enter the correct VIN.

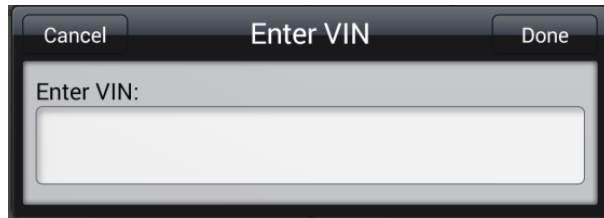


Figure 4-4 *Manual VIN Input*

5. Tap **Done**. The vehicle will be identified in a few seconds, and once the matching is successful, the system will guide you to the Vehicle Diagnostics screen directly. ([Figure 4-2](#))
6. Tap **Cancel** to exit Manual Input.

4.3.3 Manual Vehicle Selection

When the vehicle's VIN is not automatically retrievable through the vehicle's ECU, or the specific VIN is unknown, you can choose to select the vehicle manually.

Step-by-step Vehicle Selection

This mode of vehicle selection is menu driven; you can simply follow the on-screen prompts and make a series of choices. Each selection you make advances you to the next screen. A **Back** button at the lower right corner of the screen will bring you back to the previous step. Exact procedures may vary somewhat by various vehicles being serviced.

4.3.4 Alternative Vehicle Identification

Occasionally, you may identify a test vehicle that the tester does not recognize; the database does not support, or has some unique characteristics that prevent it from communicating with the tester through the normal channels. In these instances, you are provided with the OBD direct entry, through which you can perform generic OBD II or EOBD tests. See [4.8 Generic OBD II Operations](#) on page 49 for details.

4.4 Navigation

This section describes how to navigate the Diagnostics interface and select test options.

4.4.1 Diagnostics Screen Layout

The diagnostic screens typically include four sections. ([Figure 4-5](#))

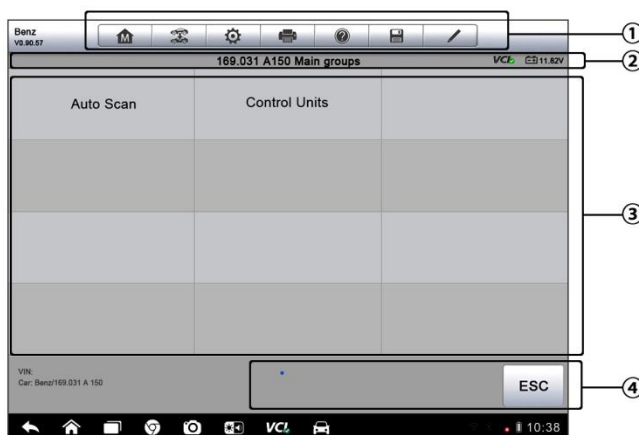


Figure 4-5 Sample Diagnostics Screen

1. Diagnostics Toolbar
2. Status Information Bar
3. Main Section
4. Functional Buttons

Diagnostics Toolbar

The Diagnostics Toolbar contains a number of buttons that allow you to print or save the displayed data and make other controls. The table below provides a brief description for the operations of the Diagnostics Toolbar buttons:

Table 4-2 *Diagnostics Toolbar Buttons*

Button	Name	Description
	Home	Returns to the MaxiSys Job Menu.
	Vehicle Swap	Touching this button allows you to exit the diagnostic session of the currently identified test vehicle, and returns you to the vehicle menu screen to select another vehicle for testing.
	Settings	Opens the setting screen. See Settings Operations on page 89.
	Print	Saves and prints a copy of the displayed data. See 3.3.1 Printing Operation for additional information on page 17.
	Help	Provides instructions or tips for operations of various diagnostic functions.
	Save	Tapping this button opens a submenu, on which there are 3 options available to save the displayed data. • Tap Save This Page to take a screenshot image • Tap Save All Data to save a PDF file (mostly used to save data that cover more than 1 page) • Tap Start Saving to record a video clip (only available for recording Live Data or special graph data) All saved data are stored in the Data Manager application for later reviews. See Data Manager Operations on page 84.

Button	Name	Description
	Data Logging	Records the communication data and ECU information of the test vehicle. The saved data can be reported and sent to the technical center via the internet. You can go to the Support application to follow up the processing progress, see 12.5 Data Logging on page 104 for detailed information.
	Send	Tapping this button submits the Data Logging report to the technical center via the internet.

➤ **To print data in Diagnostics**

1. Tap the **Diagnostics** application button from the MaxiSys Job Menu. The **Print** button on the diagnostic toolbar is available throughout the whole Diagnostics operations.
2. Tap **Print** whenever you want to make a printing. A drop-down menu appears.
 - a) **Print This Page** – prints a screenshot copy of the current screen
 - b) **Print All Page** – prints a PDF copy of all displayed data
3. A temporary file will be created and send to the computer for printing.
4. When the file is transferred successfully, a confirmation message displays.

NOTE: Make sure the Display Tablet is connected to the computer network, either via Wi-Fi or LAN, before printing. For more instructions on printing, see [3.3.1 Printing Operation](#) on page 17 for details.

➤ **To submit Data Logging reports in Diagnostics**

1. Tap the **Diagnostics** application button from the MaxiSys Job Menu. The **Data Logging** button on the diagnostic toolbar is available throughout the whole Diagnostics operations.
2. Tap the **Data Logging** button. The button displays blue during the active recording process.
3. Tap the **Data Logging** button again to finish recording. A submission

form will display to let you fill in the report information.

4. Tap the **Send** button to submit the report form via the internet, a confirmation message displays when sending is successful.

Status Information Bar

The Status Information Bar at the top of the Main Section displays the following items:

1. **Menu Title** – indicates the menu subject of the Main Section
2. **VCI Icon** – indicates the communication status between the tablet and the VCI device
3. **Battery Icon** – indicates the battery status of the *VEHICLE*

Main Section

The Main Section of the screen varies depending on the stage of operations. The Main Section can show vehicle identification selections, the main menu, test data, messages, instructions and other diagnostic information.

Functional Buttons

The displayed Functional Buttons at this section of the screen varies depending on the stage of operations. They can be used to navigate, save or clear the diagnostic data, exit scanning as well as make other functional controls. The functions of these buttons will be introduced respectively in the following sections of the corresponding test operations.

4.4.2 Screen Messages

Screen messages appear when additional input is needed before proceeding. There are mainly three types of on-screen messages as to their purposes: Confirmation, Warning, and Error.

Confirmation Messages

This type of messages usually displays as an “Information” screen, which informs you when you are about to perform an action that cannot be reversed or when an action has been initiated and your confirmation is needed to continue.

When a user-response is not required to continue, the message displays briefly before automatically disappearing.

Warning Messages

This type of messages informs you when completing the selected action may result in an irreversible change or loss of data. The typical example for this is the "Erase Codes" message.

Error Messages

Error messages inform you when a system or procedural error has occurred. Examples of possible errors include a disconnection or communication interruption due to certain reasons.

4.4.3 Making Selections

The Diagnostics application is a menu driven program that presents a series of choices one at a time. As you select from a menu, the next menu in the series displays. Each selection narrows the focus and leads to the desired test. Use your fingertip or the stylus pen to make menu selections.

4.5 Main Menu

The Diagnostics application allows you to establish a data link to the electronic control system of the test vehicle via the VCI device for vehicle diagnosis, and service. You can operate functional tests, retrieve vehicle diagnostic information such as trouble codes, event codes and live data for various vehicle control systems, such as engine, transmission, ABS and more.

The Vehicle Diagnostics screen ([Figure 4-2](#)) has 2 main options:

1. **Diagnosis** – a comprehensive section which includes all available functions: reading, clearing, saving and printing diagnostic information, as well as performing active tests and special functions
2. **Service** – a separate section designed to perform vehicle scheduled service and maintenance, such as to reset the service lights and perform calibration for various systems

After a section is selected and the tablet establishes communication with the vehicle via the VCI device, the corresponding function menu or selection menu displays.

4.6 Diagnosis

There are two options available when accessing the Diagnosis section:

1. **Auto Scan** – starts auto scanning for all the available systems on the vehicle
2. **Control Units** – displays a selection menu of all available control units of the test vehicle

Auto Scan

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

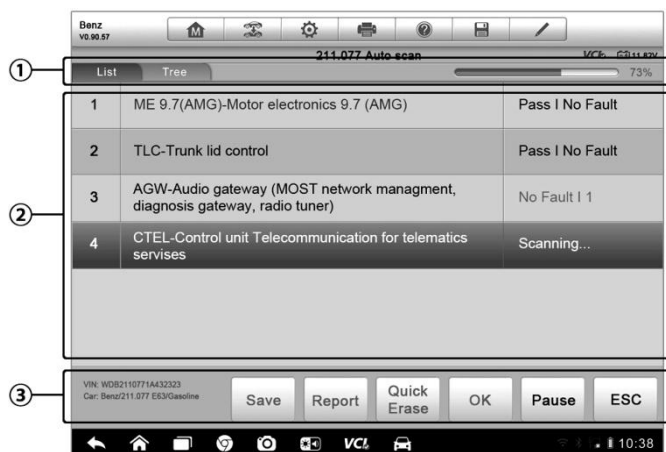


Figure 4-6 Sample Auto Scan Operation Screen

1. Navigation Bar
 2. Main Section
 3. Functional Buttons
- **Navigation Bar**
 1. List Tab – displays the scanned data in list format
 2. Tree Tab – display the scanned data in system distribution diagram format
 3. Progress Bar – indicates the test progress

- **Main Section**

A. *List Tab*

Column 1 - displays the system numbers

Column 2 - displays the scanned systems

Column 3 - displays the diagnostic marks indicating different conditions of the test result:

-!-: Indicates that the scanned system may not support the code reading function, or there is a communication error between the tester and the control system.

-?-: Indicates that the vehicle control system has been detected, but the tester cannot accurately locate it.

Fault | #: Indicates there is/are detected fault code(s) present; “#” indicates the number of the detected faults.

Pass | No Fault: Indicates the system has passed the scanning process and no fault has been detected.

B. *Tree Tab*

The tree tab screen displays a system distribution diagram of the vehicle control modules. The scanned system which has passed scanning with no fault is shown in blue font; whereas the scanned system that has been detected with fault present is shown in red font.

- Tap the  button to the right of the system item, on which you want to perform further diagnosis and other test activities. A Function Menu screen ([Figure 4-7](#)) shall then display.

- **Functional Buttons**

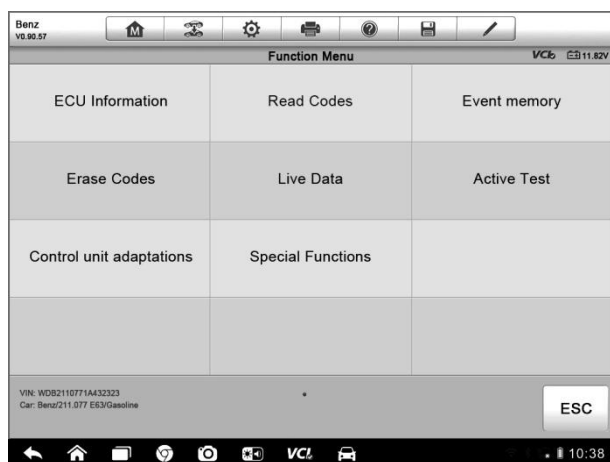
The table below provides a brief description of the Functional Buttons' operations in Auto Scan:

Table 4-3 *Functional Buttons in Auto Scan*

Name	Description
Back	Returns to the previous screen or exit Auto Scan.
Pause	Suspends scanning and changes to show the Continue button.
OK	Confirms the test result, and continues to the system diagnosis after selecting the required system by tapping the item in the Main Section.
Quick Erase	Deletes codes. A warning message screen will display to inform you of possible data loss when this function is selected.
Report	Displays the diagnostic data in the report form.
Save	Saves the diagnostic session as a history record, this allows you to quickly restore access to the test systems.

Control Units

This option allows you to manually locate a required control system for testing through a series of choices. You simply follow the menu driven procedure, and make proper selection each time; the program will guide you to the diagnostic function menu after a few choices you've made.

**Figure 4-7** *Sample Function Menu Screen*

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

- **ECU Information** – provides the retrieved ECU information in detail. Selecting opens an information screen.
- **Read Codes** – displays detailed information of DTC records retrieved from the vehicle control module.
- **Erase Codes** – erases DTC records and other data from the ECM.
- **Live Data** – retrieves and displays live data and parameters from the vehicle's ECU.
- **Active Test** – provides specific subsystem and component tests. This selection may appear as **Actuators**, **Actuator Test**, or **Function Tests**, etc., and the tests options vary depending on the manufacturer and model.
- **Special Functions** – provides component adaptation or variant coding functions for custom configurations, and also allows you to reprogram adaptive values for certain components after making repairs. Depending on the test vehicle, this selection may sometimes appear as **Control Unit Adaptations**, **Special Functions**, **Variant Coding**, **Configuration**, etc.

NOTE: With the diagnostic toolbar on top of the screen throughout the whole diagnostic procedures, you are allowed to make various controls of the diagnostic information at any time, such as printing and saving the displayed data, getting help information, or performing data logging, etc.

➤ **To perform a diagnostic function**

1. Establish communication with the test vehicle via the VCI device.
2. Identify the test vehicle by selecting from the menu options.
3. Select the **Diagnosis** section.
4. Locate the required system for testing by **Auto Scan** or through menu driven selections in **Control Units**.
5. Select the desired test from the **Function Menu**.

4.6.1 ECU Information

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

The sample ECU Information screen displays as below:

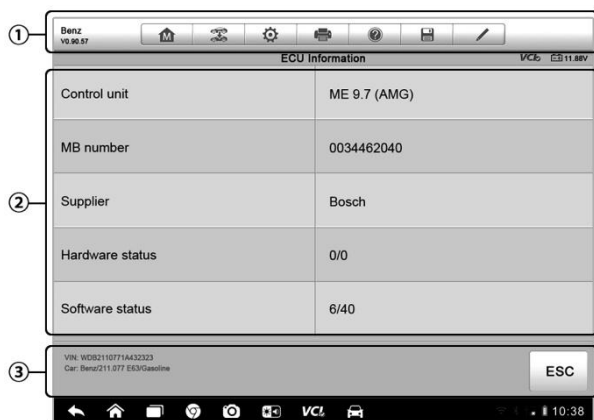


Figure 4-8 Sample ECU Information Screen

1. **Diagnostics Toolbar Buttons** – see [Table 4-2 Diagnostics Toolbar Buttons](#) on page 29 for detailed descriptions of the operations for each button.
2. **Main Section** – the left column displays the item names; the right column shows the specifications or descriptions.
3. **Functional Button** – In this case, only a Back (or sometimes an ESC) button is available; tap it to exit after viewing.

4.6.2 Read Codes

This function retrieves and displays the DTCs from the vehicle's control system. The Read Codes screen varies for each vehicle being tested. On some vehicles, freeze frame data can also be retrieved for viewing. The sample Read Codes screen displays as below:

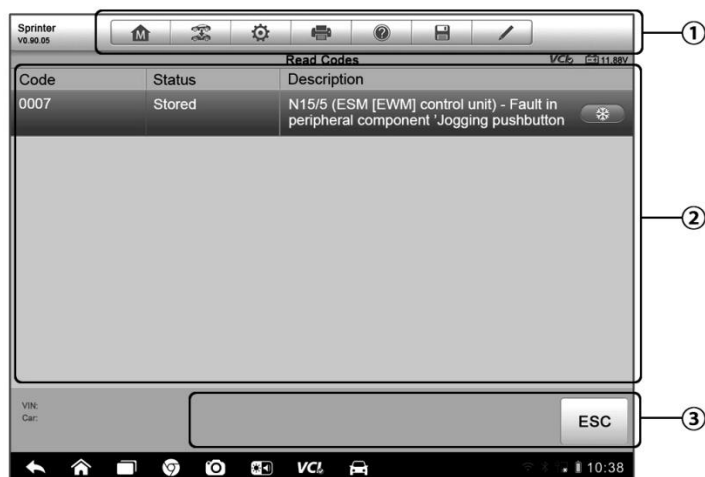


Figure 4-9 Sample Read Codes Screen

1. **Diagnostics Toolbar Buttons** – see [Table 4-2 Diagnostics Toolbar Buttons](#) on page 29 for detailed descriptions of the operations for each button.
2. **Main Section**
 - Code Column – displays the retrieved codes from the vehicle.
 - Status Column – indicates the status of the retrieved codes.
 - Description Column – detailed descriptions for the retrieved codes.
 - Snowflake Icon – only displays when freeze frame data is available for viewing; Selecting this icon will display a data screen, which looks very similar to the Read Codes interface, therefore same operation method may be applied.
3. **Functional Button** – only a **Back** (or sometimes an **ESC**) button is available; tap it to return to the previous screen or exit the function.

4.6.3 Erase Codes

After reading the retrieved codes from the vehicle and certain repairs have been carried out, you can erase the codes from the vehicle using this function. Before performing this function, make sure the vehicle's ignition key is in the ON (RUN) position with the engine off.

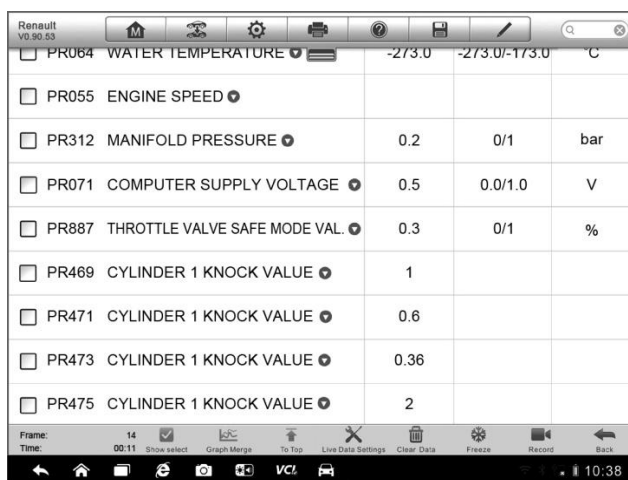
➤ **To erase codes**

1. Tap **Erase Codes** from the Function Menu.
2. A warning message displays to inform you of data loss when this function is applied.
 - a) Tap **Yes** to continue. A confirming screen displays when the operation is successfully done.
 - b) Tap **No** to exit.
3. Tap **ESC** on the confirming screen to exit Erase Codes.
4. Perform the Read Codes function again to check if the code erasing is successful.

4.6.4 Live Data

When this function is selected, the screen displays the data list for the selected module. The items available for any control module vary from one vehicle to another. The parameters display in the order that they are transmitted by the ECM, so expect variation between vehicles.

Gesture scrolling allows you to quickly move through the data list. Simply swipe the screen up or down to locate the data you want. The figure below shows a typical Live Data screen:



Parameter ID	Parameter Name	Value 1	Value 2	Unit
PR064	WATER TEMPERATURE	-273.0	-273.0/-173.0	°C
PR055	ENGINE SPEED			
PR312	MANIFOLD PRESSURE	0.2	0/1	bar
PR071	COMPUTER SUPPLY VOLTAGE	0.5	0.0/1.0	V
PR887	THROTTLE VALVE SAFE MODE VAL.	0.3	0/1	%
PR469	CYLINDER 1 KNOCK VALUE	1		
PR471	CYLINDER 1 KNOCK VALUE	0.6		
PR473	CYLINDER 1 KNOCK VALUE	0.36		
PR475	CYLINDER 1 KNOCK VALUE	2		

Figure 4-10 Sample Live Data Screen

1. **Diagnostics Toolbar Buttons** – tap the drop-down button at the top center of the screen and the toolbar buttons will display. See [Table 4-2 Diagnostics Toolbar Buttons](#) on page 29 for detailed descriptions of the operations for each button.
2. **Main Section**
 - Name Column – this column displays the parameter names.
 - a) **Check Box** - tap the check box at the left side of the parameter name to make selection of an item. Tap the check box again to deselect the item.
 - b) **Drop-down Button** – tapping the drop-down button at the right side of the parameter name opens a submenu, which provides various choices for data display mode.
 - Value Column – displays the values of the parameter items.
 - Range Column - displays the minimum and the maximum value.
 - Unit Column – displays the unit for the parameters.
 - To change the unit mode, tap the **Setting** button on the top toolbar and select a required mode. See [9.1.1 Unit](#) on page 89 for more information.
3. **Display Mode**

There are 4 types of display modes available for data viewing, allowing you to view various types of parameters in the most suitable way.

Tapping the drop-down button on the right side of the parameter name opens a submenu. There are 4 buttons to configure the data display mode, and one Help button on the right that you can tap for additional information.

Each parameter item displays the selected mode independently.

Analog Gauge Mode – displays the parameters in form of an analog meter graph

Text Mode – this is the default mode which displays the parameters in texts and shows in list format

NOTE: Reading of status parameters, such as a switch reading, which are mostly in word form, like ON, OFF, ACTIVE, and ABORT, etc., can only be displayed in Text Mode. Whereas reading of value parameters, such as a sensor reading, can be displayed in text mode and other graph modes.

Waveform Graph Mode – displays the parameters in waveform graphs

When this mode is applied, three control buttons will appear on the right side of the parameter item, allowing you to manipulate the display status.

- **Text Button** – resumes Text Display Mode
- **Scale Button** – changes the scale values, which are displayed below the waveform graph. There are 4 scales available: x1, x2, x4 and x8.
- **Zoom-in Button** – tap once to display the selected data graph in full screen

Digital Gauge Mode– displays the parameters in form of a digital gauge graph

Full Screen Display – this option is only available in the waveform graph mode, and mostly used in Graph Merge status for data comparison. There are three control buttons available on the top right side of the screen under this mode.

- **Edit Button** – tapping this button opens an edit window, on which you can set the waveform color and the line thickness displayed for the selected parameter item.
- **Scale Button** - changes the scale values, which are displayed below the waveform graph. There are 4 scales available: x1, x2, x4 and x8.
- **Zoom-out Button** – exits full screen display.

➤ **To edit the waveform color and line thickness in a data graph**

1. Select 1 to 3 parameter items to display in Waveform Graph mode.
2. Tap the **Zoom-in Button** on the right to display the data graph in full screen.
3. Tap the **Edit Button**, and an edit window appears.
4. Select a parameter item on the left column.
5. Select a desired sample color from the second column.
6. Select a desired sample line thickness from the right column.
7. Repeat step 4-7 to edit the waveform for each parameter item.
8. Tap **Done** to save the setting and exit, or tap **Cancel** to exit without saving.

4. **Functional Buttons**

The operations of all the available functional buttons on Live Data screen are described below:

Back – returns you to the previous screen or exit the function.

Record – starts recording the retrieved live data; the recorded data is then stored as a video clip in the Data Manager application for future reviews. This function could be triggered automatically at preset threshold value or manually as you choose, and the triggering mode and record duration can be configured in the Setting mode of Live Data.

Freeze – displays the retrieved data in freeze mode.

- Previous Frame – Moves to the previous frame in the freeze data.
- Next Frame – Moves to the next frame in the freeze data.

Resume – this button appears when the Record or Freeze function is applied. Tapping this button stops data recording, or exit freeze data mode, and resumes normal data display mode.

Flag – this button appears when the Record function is applied. Tapping this button sets flags for the recorded data at points wherever you choose. When playing back the recorded video clip later in *Data Manager*, the preset flag will enable a popup to allow input of text to take notes.

Clear Data – clears all previously retrieved parameter values at a cutting point whenever you choose.

To Top – moves a selected data item to the top of the list.

Graph Merge – tap this button to merge selected data graphs (for Waveform Graph Mode only). This function is very useful when making comparison between different parameters.

NOTE: This mode supports Graph Merge for 2 to 3 parameter items only, so select no less than 2 or no more than 3 items each time when making graph merge.

- To cancel Graph Merge mode, tap the drop-down button on the right side of the parameter name, and select a data display mode.

Show Selected/Show All – tap this option to switch between the two options; one displays the selected parameter items, the other displays all the available items.

Setting – tapping this button opens a setting screen, which allows you to set the trigger mode, recording duration, and various threshold values for data recording, and make other controls.

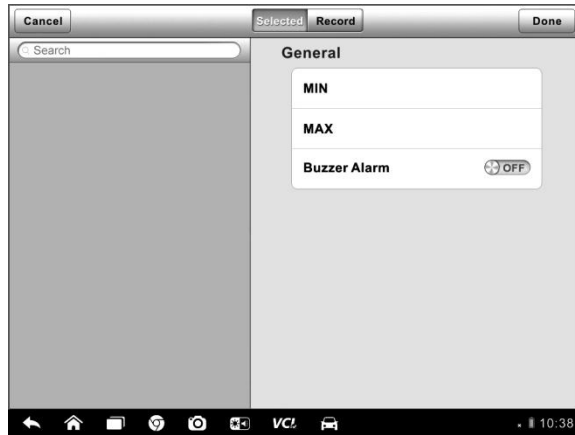


Figure 4-11 Sample Setting Mode in Live Data

There are four navigation buttons on top of the **Setting** mode screen.

- **Range Button** – displays the configuration screen on which you can set the threshold values, an upper limit and a lower limit, for triggering the buzzer alarm. This function is only applied to the Waveform Graph display mode.
 - a) **MIN** – tapping which opens a virtual keyboard, allowing you to enter the required lower limit value
 - b) **MAX** – tapping which opens a virtual keyboard, allowing you to enter the required upper limit value
 - c) **Buzzer Alarm** – switches the alarm on and off. The alarm function makes a beep sound as a reminder whenever the data reading reaches the preset minimum or maximum point
- **To set threshold limits for the parameter values**
 1. Tap the **Setting** functional button at the bottom of the Live Data screen.
 2. Tap the **Range** navigation button.

3. Select a parameter item on the left column, or enter the item name in the Search bar.
4. Tap on the right side of the **MIN** button, and enter the required minimum value.
5. Tap on the right side of the **MAX** button, and enter the required maximum value.
6. Tap the **ON/OFF** button on the right side of the Buzzer Alarm button to turn it on or off.
7. Tap **Done** to save the setting and return to the Live Data screen; or tap **Cancel** to exit without saving.

If the threshold limits are successfully set, two horizontal lines will appear on each of the data graphs (when Waveform Graph Mode is applied) to indicate the alarming point. The threshold lines are shown in different colors from the waveform of the parameters for distinction.

- **Record Button** – displays the configuration screen for Record Setting, on which you can set the trigger type, duration and trigger point for the data recording function.
 - a) **Trigger Type** – sets the trigger mode for data recording, mainly of two kinds: Manual and Auto. There are four options available:
 - 1) **Manual** – allows you to manually start and stop data recording
 - 2) **DTC** – auto triggers data recording when any DTC is detected
 - 3) **DTC Check Mode** – auto triggers data recording when certain pre-selected DTC types are detected
 - 4) **Parameter** – auto triggers data recording when any parameter value reaches the preset threshold
 - b) **Duration** – sets the recording time (for Auto trigger mode only)
 - c) **Trigger Point** – reserves a relative percentage of a record length before the data recording start point for reference (for Auto trigger mode only)

➤ **To perform setting for live data record**

1. Tap the **Setting** functional button at the bottom of the Live Data screen.
 2. Tap the **Record** navigation button.
 3. Tap the ⊖ button on the right of **Trigger Type** bar and select the required trigger mode.
 4. Tap the ⊖ button on the right of **Duration** bar and select a length of time.
 5. Tap the ⊖ button on the right of **Trigger Point** bar and select a relative percentage of a record length to be reserved before the data recording start point.
 6. Tap **Done** to save the setting and return to the Live Data screen; or tap **Cancel** to cancel without saving and exit Setting.
- **Done Button** - confirms and saves the setting, and returns you to the Live Data screen.
 - **Cancel Button** – cancels the setting operation, and returns you to the Live Data screen.

4.6.5 Active Test

The Active Test function is used to access vehicle-specific subsystem and component tests. Available tests vary depending on the manufacturer, year, and model, and only the available tests display in the menu.

During an active test, the tester outputs commands to the ECU in order to drive the actuators. This test determines the integrity of the system or parts by reading the engine ECU data, or by monitoring the operation of the actuators, such as switching a solenoid, relay, or switch, between two operating states.

Selecting Active Test opens a menu of test options that varies by make and model. Selecting a menu option activates the test. Follow all screen instructions while performing tests. The content and pattern of the on-screen information vary according to the type of test being performed. Some toggle and variable control tests display Active Test Controls at the top of the screen with data stream information below, or vice versa.

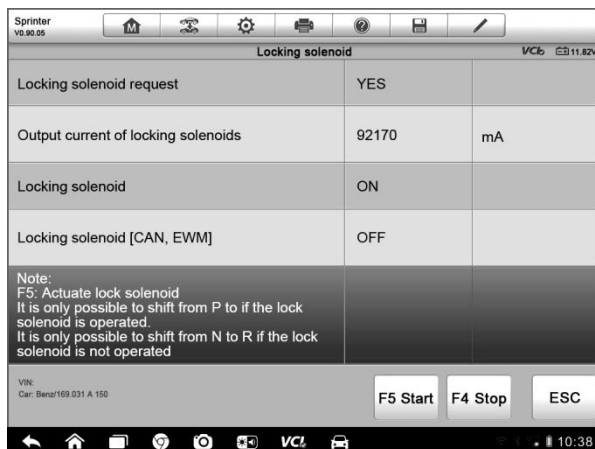


Figure 4-12 Sample Active Test Screen

The functional buttons at the lower right corner of the Active Test screen manipulate the test signals. The operational instructions are displayed on the main section of the test screen. Simply follow the on-screen instructions and make appropriate selections to complete the tests. Each time when an operation is successfully executed, message such as “Command Finished”, “Activation Successful”, or something similar displays.

Tap the **ESC** functional button to exit the test when finished.

4.6.6 Special Functions

These functions perform various component adaptations, allowing you to recalibrate or configure certain components after making repairs or replacement.

The main section of the Adaptation Operation screen displays a list of operational and vehicle status information, which mainly consists of four parts:

1. The first part in the top line shows the description of the operation being performed, and the execution status is displayed on the right, such as Completed, Activated, etc.
2. The second part shows the preconditions or requirements for executing the operation being selected.

3. The third part displays the current conditions of the vehicle control module being learned for comparison to the preconditions suggested by the second part. If the current condition of the control module is out of the suggested limit value, you must adjust the vehicle condition to meet the requirement.
4. The last part displays the instruction of how to use the functional button at the lower right corner of the screen to manipulate the teach-in operations.

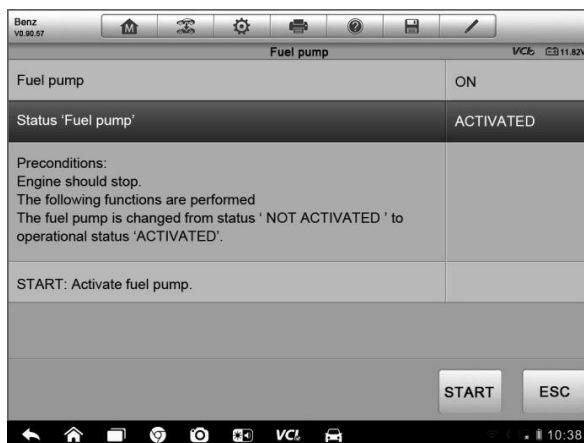


Figure 4-13 Sample Adaptation Operation Screen

Read the information carefully and check the vehicle condition accordingly, when you are sure that the vehicle is ready to perform the adaptation, simply follow the instruction provided to make appropriate selections. When the operation is done, an execution status message such as Completed, Finished or Successful, displays.

Tap the **ESC** button to exit the function.

4.7 Service

The Service section is specially designed to provide you with quick access to the vehicle systems for various scheduled service and maintenance performances. The typical service operation screen is a series of menu driven executive commands. By following the on-screen instructions to select appropriate execution options, enter correct values or data, and perform necessary actions, the system will guide you through the complete performance for various service operations.

The most commonly performed service functions include:

- Oil Reset Service
- TPMS Programming Service
- EPB Service
- ABS/SRS Services
- SAS Calibration Service
- DPF Regeneration Service

4.7.1 Function Descriptions

This section describes the main functions for vehicle service:

Oil Reset Service

This function allows you to perform reset for the Engine Oil Life system, which calculates an optimal oil life change interval depending on the vehicle driving conditions and climate. The Oil Life Reminder must be reset every time the oil is changed, so the system can calculate when the next oil change is required.

Tire Pressure Monitor System (TPMS) Service

This function allows you to quickly look up the tire sensor IDs from the vehicle's ECU, as well as to perform TPMS programming and reset procedures after tire sensors are replaced.

Electric Parking Brake (EPB) Service

This function has a multitude of usages to maintain the electronic braking system safely and effectively. The applications include deactivating and activating the brake control system, assisting with brake fluid control, opening and closing brake pads, and setting brakes after disc or pad replacement, etc.

ABS/SRS Services

This function allows you to perform various bi-directional tests to check the operating conditions of both the Anti-lock Braking System and the Supplemental Restraint System, such as Automated Bleeding, Pump Motor Test, and checking Module information, etc.

Steering Angle Sensor (SAS) Service

This service function allows you to perform calibration for the Steering Angle Sensor, which permanently stores the current steering wheel position as the straight-ahead position in the steering angle sensor EEPROM. On successful completion of the calibration, the steering angle sensor fault memory is automatically cleared.

DPF Regeneration Service

The Diesel Particulate Filter service function performs the regeneration procedure which is the DPF cleaning operation to clear the blockage through continuous burning of the particulate matter captured in the DPF filter. If the DPF light on the vehicle comes on and you successfully complete a DPF regeneration cycle, you will notice that the DPF light will automatically turn off.

4.8 Generic OBD II Operations

A fast-access option for OBD II/EODB vehicle diagnosis is available on the Vehicle Menu screen (**Figure 4-1**). This option presents a quick way to check for DTCs, isolate the cause of an illuminated malfunction indicator lamp (MIL), check monitor status prior to emissions certification testing, verify repairs, and perform a number of other services that are emissions-related. The OBD direct access option is also used for testing OBD II/EODB compliant vehicles that are not included in the Diagnostics database.

Functions of the diagnostics toolbar buttons at the top of the screen are the same as those available for specific vehicle diagnostics. See [Table 4-2 Diagnostics Toolbar Buttons](#) on page 29 for details.

4.8.1 General Procedure

➤ To access the OBD II/EODB diagnostics functions

1. Tap the **Diagnostics** application button from the MaxiSys Job Menu. The Vehicle Menu displays.
2. Tap the **EODB** button. There are two options to establish communication with the vehicle.
 - **Auto Scan** – When this option is selected the diagnostic tool attempts to establish communication using each protocol in order to determine which one the vehicle is broadcasting on.

- **Protocol** – When this option is selected the screen opens a submenu of various protocols. A communication protocol is a standardized way of data communication between an ECM and a diagnostic tool. Global OBD may use several different communication protocols.
3. Select a specific protocol under the **Protocol** option. Wait for the OBD II Diagnostic Menu to appear.



Figure 4-14 Sample OBD II Diagnostic Menu

NOTE: Tapping the ⓘ button displayed beside the function name opens a bubble with additional function information.

4. Select a function option to continue.
 - **DTC & FFD**
 - **I/M Readiness**
 - **Live Data**
 - **O2 Sensor Monitor**
 - **On-Board Monitor**
 - **Component Test**
 - **Vehicle Information**
 - **Vehicle Status**

NOTE: Some functions are supported only on certain vehicle makes.

4.8.2 Function Descriptions

This section describes the various functions of each diagnostic option:

DTC & FFD

When this function is selected, the screen displays a list of Stored Codes and Pending Codes. When the Freeze Frame data of certain DTCs are available for viewing, a snowflake button will display on the right side of the DTC item. The Erase Codes function can be applied by tapping the functional button at the lower bottom of the screen.



Figure 4-15 Sample DTC & FFD Screen

- **Stored Codes**

Stored codes are the current emission related DTCs from the ECM of the vehicle. OBD II/EOBD Codes have a priority according to their emission severity, with higher priority codes overwriting lower priority codes. The priority of the code determines the illumination of the MIL and the codes erase procedure. Manufacturers rank codes differently, so expect to see differences between makes.

- **Pending Codes**

These are codes whose setting conditions were met during the last drive cycle, but need to be met on two or more consecutive drive cycles before the DTC actually sets. The intended use of this service is to assist the service technician after a vehicle repair and after clearing diagnostic information, by reporting test results after a driving cycle.

- a) If a test failed during the driving cycle, the DTC associated with that test is reported. If the pending fault does not occur again within 40 to 80 warm-up cycles, the fault is automatically cleared from memory.
- b) Test results reported by this service do not necessarily indicate a faulty component or system. If test results indicate another failure after additional driving, then a DTC is set to indicate a faulty component or system, and the MIL is illuminated.

- **Freeze Frame**

In most cases the stored frame is the last DTC that occurred. Certain DTCs, which have a greater impact on vehicle emission, have a higher priority. In these cases, the top prioritized DTC is the one for which the freeze frame records are retained. Freeze frame data includes a “snapshot” of critical parameter values at the time the DTC is set.

- **Erase Codes**

This option is used to clear all emission related diagnostic data such as, DTCs, freeze frame data and manufacturer specific enhanced data from the vehicle's ECM, and reset the I/M Readiness Monitor Status for all vehicle monitors to Not Ready or Not Complete status.

A confirmation screen displays when the clear codes option is selected to prevent accidental loss of data. Select **Yes** on the confirmation screen to continue or **No** to exit.

I/M Readiness

This function is used to check the readiness of the monitoring system. It is an excellent function to use prior to having a vehicle inspected for compliance to a state emissions program. Selecting I/M Readiness opens a submenu with two choices:

- **Since DTCs Cleared** – displays the status of monitors since the last time the DTCs are erased.
- **This Driving Cycle** – displays the status of monitors since the beginning of the current drive cycle.

Live Data

This function displays the real time PID data from ECU. Displayed data includes analog inputs and outputs, digital inputs and outputs, and system

status information broadcast on the vehicle data stream.

Live data can be displayed in various modes, see [4.6.4 Live Data](#) on page 39 for detailed information.

O2 Sensor Monitor

This option 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 Sensor Monitor test function is not supported by vehicles which communicate using a controller area network (CAN). For O2 Sensor Monitor tests results of CAN-equipped vehicles, refer to [On-Board Monitor](#).

On-Board Monitor

This option allows you to view the results of On-Board Monitor tests. The tests are useful after servicing or after erasing a vehicle's control module memory.

Component Test

This service enables bi-directional control of the ECM so that the diagnostic tool is able to transmit control commands to operate the vehicle systems. This function is useful in determining whether the ECM responds to a command well.

Vehicle Information

The option displays the vehicle identification number (VIN), the calibration identification, and the calibration verification number (CVN), and other information of the test vehicle.

Vehicle Status

This item is used to check the current condition of the vehicle, including communication protocols of OBD II modules, retrieved codes amount, status of the Malfunction Indicator Light (MIL), and other additional information.

4.9 Exiting Diagnostics

The Diagnostics application remains open as long as there is an active communication with the vehicle. You must exit the diagnostics operation interface to stop all communications with the vehicle before closing the Diagnostics application.

NOTE: Damage to the vehicle electronic control module (ECM) may occur if communication is disrupted. Make sure all connections, such as USB cable and wireless connection, are properly connected at all times during testing. Exit all tests before disconnecting the test connection or powering down the tool.

➤ **To exit the Diagnostics application**

1. From an active diagnostic screen, tap the **Back** or **ESC** functional button to exit a diagnostic session step-by-step; Or
2. Tap the **Vehicle Swap** button on the diagnostics toolbar to return to the Vehicle Menu screen.
3. From the Vehicle Menu screen, tap the **Home** button on the top toolbar; or tap the **Back** button on the navigation bar at the bottom of the screen. Or
4. Tap the **Home** button on the diagnostics toolbar to exit the application directly and go back to the MaxiSys Job Menu.

Now, the Diagnostics application is no longer communicating with the vehicle and it is safe to open other MaxiSys applications, or exit the MaxiSys Diagnostic System and return to the Android System's Home screen.

Chapter 5 TPMS Service Operations

The TPMS application is used to check the TPMS sensor conditions, program the MX-Sensor, perform the TPMS Relearn procedure and basic TPMS diagnostic functions.

NOTE: The TPMS service operation is available for MaxiSys MS906TS only.

5.1 Navigation

Tap the **TPMS** application button from the MaxiSys Job, the Vehicle Menu will appear. (Figure 5-1) Select the specific vehicle to perform TPMS service.



Figure 5-1 Sample Vehicle Menu Screen

A TPMS icon displays on the Manufacturer button indicating the TPMS service is available. Detailed description of the buttons, see 4.2.1 [Vehicle Menu Layout](#) on page 23.

After selecting the vehicle brand, the TPMS button on the system Navigation bar at the bottom of the screen shall display a green tick icon.

5.1.1 TPMS Service Screen Layout

The screens in TPMS service application typically include four sections.



Figure 5-2 Sample TPMS Service Menu Screen

1. Top Toolbar Buttons
2. Navigation Tab
3. Main Section
4. Functional Buttons

Top Toolbar Buttons

The top toolbar contains a number of buttons that allow you to print or save the displayed data and make other controls. For more information, see Table 4-2 [Diagnostics Toolbar Buttons](#) on page 13.

Navigation Tab

The navigation tab at the top of the Main Section screen contains the following items:

1. Check Tab – displays the triggered sensor data
2. Programming Tab – displays the triggered/retrieved sensor IDs and new programmed sensor IDs.
3. Relearn Tab – displays the OEM sensor manufacturer and part number, sensor frequency and relearn procedures.

Main Section

The main section of the screen varies depending on the stage of operations. The main section can show the TPMS sensor conditions, such as sensor ID, pressure, temperature and battery status, and the specific relearn procedures.

Functional Buttons

The displayed functional buttons at this section of the screen varies depending on the stage of operations. They can be used to trigger the TPMS sensor, create sensor IDs, program MX-Sensor, read and clear codes, return to the previous screen or exit the function. The functions of these buttons will be introduced respectively in the following sections.

5.2 Check Operations

The sensor check function allows activating of TPMS sensor to view sensor data such as sensor ID, tire pressure, tire temperature, sensor battery, sensor position, and sensor frequency. It also sends the sensor data to vehicle's ECU to let the ECU learn the positions of sensors whenever wheels are rotated or sensors are replaced.

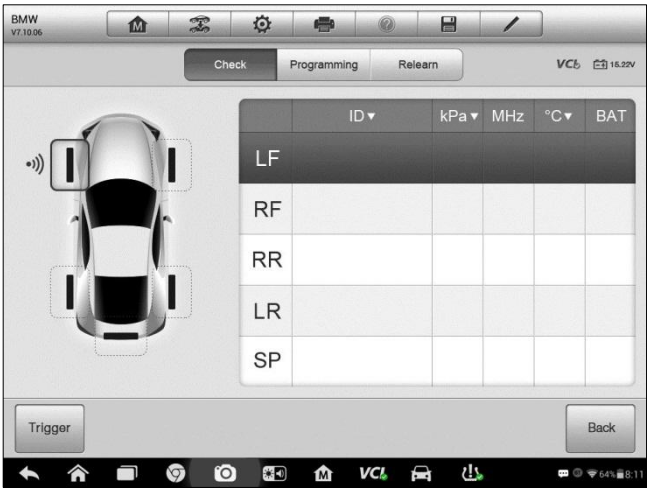


Figure 5-3 Sample Check Function Screen

Main Section

Column 1 – displays the wheel positions

Column 2 – displays sensor IDs

Column 3 – displays the tire pressure

Column 4 – displays the sensor frequency

Column 5 – displays the tire temperature

Column 6 – displays the sensor battery condition

NOTE: You can choose a unit on the table header according to your preference.

➤ To check TPMS sensor

1. Tap **Check** Tab.
2. Tap the desired wheel position on the vehicle thumbnail. Hold the Display Tablet with its top right corner (with the TPMS service symbol) close to the tire sidewall near the valve stem, and then press the **Trigger** button.

The Display Tablet will send low frequency signal to trigger the sensor.

NOTE: The Display Tablet will perform TPMS check in a sequence of FL (front left), FR (front right), RR (rear right), RL (rear left) and SP (spare, if any).

3. The sensor data of the selected wheel will display on the table of the screen once the sensor is successfully activated and decoded.
4. Tap **Back** to exit.

NOTE: Wheel with a feedback icon, red or green vertical rectangle, indicates sensor trigger has been finished. Refer to Table 5-1 for details.

Table 5-1 Possible results for triggering

Icon	Results	Description
 (Green)	Successful Sensor Read	TPMS sensor is successfully activated and decoded. The table on the right side of the screen displays the sensor information.
 (Red)	Failed Sensor Read	If the search period expires and no sensor is activated or decoded, the sensor may be mounted incorrectly or cannot function. The table on the right side of the screen displays “Failed”. If a sensor with a duplicate ID has been read, the screen displays a message “Sensor ID duplicated”. In this case, repeat the test procedure.

NOTE: With Ford sensors, the tablet should be held 180 degree away from the stem. Please refer to the user manual from the vehicle maker.

5.3 **Programming Operations**

The programming function is used to program the sensor data to the MX-Sensor and replace the faulty sensor (poor battery life or malfunction). The MaxiSys MS906TS is easy to use with a proven efficiency and guaranteed accurate results.

There are four options available when programming MX-Sensor using the Display Tablet: Copy by Activation, Copy by OBD, Auto Create, and Manual Create.



Figure 5-4 Sample Programming Function Screen

Main Section

Column 1 – displays wheel positions

Column 2 – displays the new created sensor IDs

Column 3 – displays the retrieved sensor IDs by activation or by OBD

NOTE: Programming function will only work with Autel's MX-Sensor. Currently, there are two models available: Clamp-in Sensor and Snap-in Sensor, both with two types, one in orange color with 433MHz frequency, and one in dark gray color with 315MHz frequency. The Clamp-in Sensor is taken as an example in this manual. Please choose the proper MX-Sensor when programming.

5.3.1 Copy by Activation

This function allows user to bypass OBD II and automatically write in the retrieved original sensor data to the MX-Sensor. It is used after the original sensor is triggered.



Figure 5-5 Sample Copy by Activation Function Main Screen

➤ **To copy by activation**

1. After performing Check function (see [5.2 Check Operations](#)), trigger marks with sensor IDs will appear on the table in the Programming screen.
2. Select the corresponding wheel, and then tap **Copy by Activation** button.
3. Place the MX-Sensor near the top right of the Display Tablet and tap **OK** to start programming the retrieved sensor ID to the MX-Sensor.

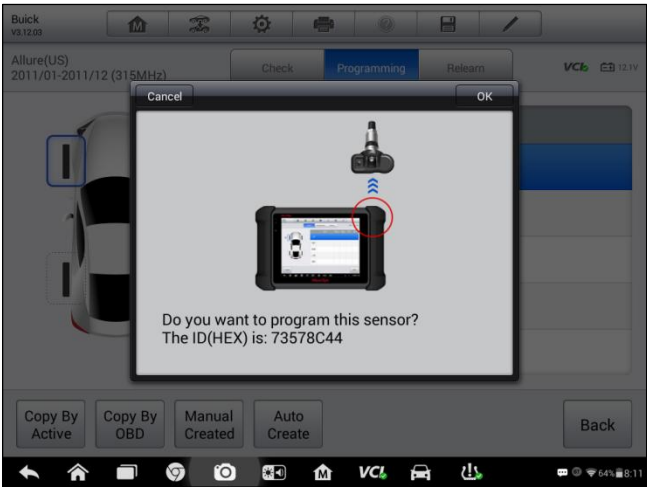


Figure 5-6 Sample Copy by Activation Function Screen

- 4. The programmed sensor ID will appear on Column 2.

5.3.2 Copy by OBD

This function allows users to write the saved sensor information into MX-Sensor after performing **Read IDs from Vehicle** in **Relearn** function.



Figure 5-7 Sample Copy by OBD Function Main Screen

➤ **To copy by OBD**

1. After performing **Read IDs from Vehicle** in **Relearn** function, OBD marks with the sensor IDs will appear on the table in Programming screen.
2. Select the specific wheel on the screen, and then tap **Copy by OBD** button.
3. Place the proper MX-Sensor near the top right of the Display Tablet, and tap **OK** to start programming the saved sensor information to the MX-Sensor.
4. The programmed sensor ID will appear on Column 2 of the table.

NOTE: If you have performed both **Check** and **Read IDs from Vehicle** functions, you can select either **Copy by Activation** or **Copy by OBD** to program the retrieved sensor ID to the MX-Sensor.

5.3.3 Auto Create

This function is designed to program the MX-Sensor by applying random IDs created according to the test vehicle, when it is unable to obtain the original sensor ID.

➤ **To Auto Create**

1. Tap **Programming** tab.
2. Select the specific wheel on the screen.
3. Tap the **Auto Create** functional button on the screen.
4. A message with sensor ID will prompt. Place the proper MX-Sensor near the top right of the Display Tablet and tap **OK** to write the new created sensor ID into the MX-Sensor.

After programming is finished, the new programmed MX-Sensor ID will display on Column 2 of the table.

NOTE: For some models, it is necessary to perform Relearn procedure after installing the new MX-Sensor programmed by the way of Auto Create.

5.3.4 Manual Create

This function allows you to manually enter sensor IDs. You can enter a random ID or the original sensor ID.

NOTE: Do not enter the same ID for different sensors.

➤ **To manual create**

1. Tap the **Programming** tab.
2. Select the specific wheel on the screen.
3. Tap **Manual Create** button.
4. Enter the characters in the prompted screen. Tap **Done** to finish and save the sensor ID, or **No** to exit.

NOTE: Sensors from different manufacturers may have different ID character length limits. The Display Tablet will automatically recognize character length of the OEM sensor ID, and prevent further input into the textbox when the limit is reached.

5. Place the proper MX-Sensor near the top right of the Display Tablet and tap **OK** to start programming.

NOTE: For some models, if a random ID is entered, please perform Relearn function after programming is finished; if the original sensor ID is entered, there is no need to perform Relearn function.

5.4 Relearn Operations

This function allows quick access to the vehicle's ECU, performing TPMS diagnostics, reading IDs from vehicle, writing IDs to the vehicle and reading/clearing codes of tire pressure monitoring system.

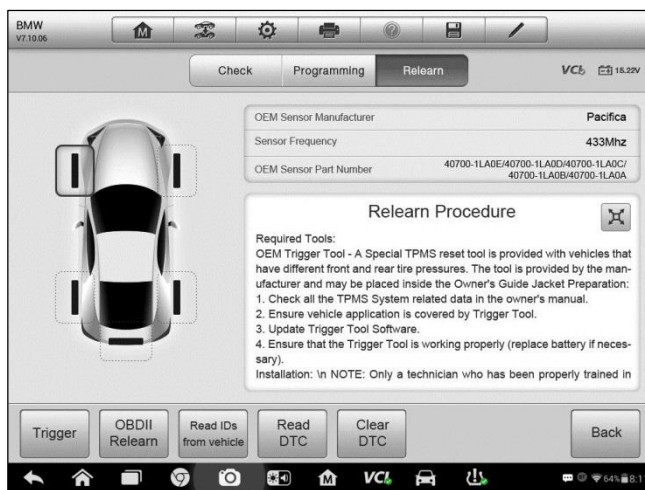


Figure 5-8 Sample Relearn Function Main Screen

The OEM sensor information and specification, and relearn procedure for each vehicle will display on the right side of the screen. Please read the relearn procedure carefully before performing the relearn function.

➤ **To perform TPMS Relearn function**

1. Establish the communication with the test vehicle via the MaxiVCI V100. Power on the Display Tablet.
2. Turn the ignition on but do not start the engine.
3. Tap **Relearn** tab on the screen and select the specific function to continue. Details are explained in the following sections.

5.4.1 OBDII Relearn

This function allows writing the sensor IDs to the TPMS ECU without performing other procedures.

NOTE: Make sure all sensors are checked before performing the OBDII Relearn function.

➤ **To perform OBDII Relearn function**

1. Tap **OBDD Relearn** to write IDs to the vehicle directly without performing further procedures.
2. A message will appear when the sensor IDs are successfully written.

5.4.2 Read IDs from vehicle

This function will read sensor IDs from the test vehicle directly.

➤ **To read IDs from vehicle**

1. Tap **Read IDs from vehicle** in the Relearn screen.
2. The Display Tablet will display the sensor IDs and positions for you to view. Tap **OK** to save data for future review, or **Back** to exit.

5.4.3 Read DTC

➤ **To read DTCs**

1. Tap **Read DTC** button from the **Relearn** screen.
2. A data list of TPMS DTCs retrieved from the vehicle's ECU will show up.

For more information about read codes, see [4.6.2 Read Codes](#) on page 37.

5.4.4 Clear DTC

➤ **To clear DTCs**

1. Tap **Clear DTC** from the **Relearn** screen.
2. The Display Tablet will show a warning message for you to confirm. Tap **Yes** to continue, or **No** to exit.
3. If the erase command is sent successfully, the confirming screen will display. Tap **ESC** on the confirming screen to exit Clear DTC.
4. Run **Read DTC** again to ensure the operation is successful.

For more information about DTC erasing, see [4.6.3 Erase Codes](#) on page 38.