

# 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.

## Conventions

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The following conventions are used.

### Bold Text

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

Example:

- Tap **OK**.

### Notes and Important Messages

#### *Notes*

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

Example:

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#### **NOTE**

New batteries reach full capacity after approximately 3 to 5 charging and discharging cycles.

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#### *Important*

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

Example:

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**! IMPORTANT**

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

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## Hyperlink

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

## Illustrations

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

## Procedures

An arrow icon indicates a procedure.

Example:

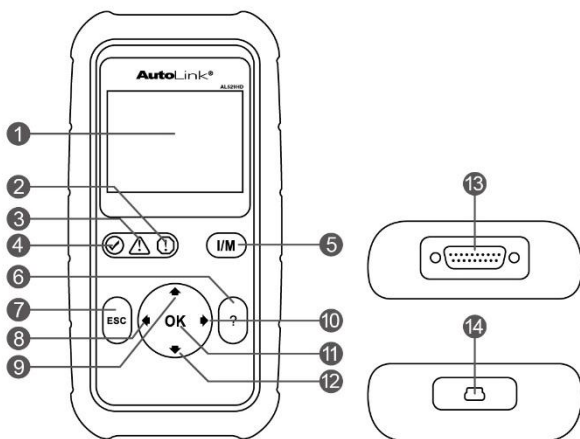
➤ **To use the camera:**

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.

# 2 Using the Scan Tool






## Tool Description

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**Figure 2-1 Product View**

- 1) **LCD DISPLAY** – displays menus and test results.
- 2) **RED LED** – indicates there is a problem in one or more of the vehicle's systems. The red LED also indicates DTCs are present. DTCs display on the Scan Tool's display. In this case, the MIL on the vehicle's instrument panel will light steady.
- 3) **YELLOW LED** – indicates there is a possible problem. A "Pending" DTC is present and/or some of the vehicle's emission monitors have not run their diagnostic testing.
- 4) **GREEN LED** – indicates that engine systems are running normally (The monitors on the vehicle are active and performing their diagnostic testing is in the allowed limit, and no DTCs are present).
- 5) **ONE-CLICK I/M READINESS KEY** – quick-checks State Emissions readiness and drive cycle verification.
- 6) **HELP BUTTON** – displays help information and accesses DTC Guide function.

- 7)  **ESC BUTTON** – cancels a selection (or action) from a menu or returns to the previous screen.
- 8)  **LEFT SCROLL BUTTON** – when looking up DTC definitions, press to review previous character and to display additional information on previous screens if present; press to deselect all marked PID data when viewing or recording customized live data list; press to view previous frames of recorded data when playing back live data. Press to update DTC library in Update mode.
- 9)  **UP SCROLL BUTTON** – press to move up menu and submenu items in menu mode. When more than one screen of data is retrieved, press to scroll to the previous screens.
- 10)  **RIGHT SCROLL BUTTON** – when viewing DTC definitions, press to view next character and to view additional DTC information; selects/deselects PID data when viewing or recording customized live data list, and views next frames of data when playing back live data.
- 11) **OK BUTTON** – confirms a selection (or action) from a menu.
- 12)  **DOWN SCROLL BUTTON** – press to move down menu and submenu items in menu mode. When more than one screen of data is retrieved, press to move down to information on next screen.
- 13) **OBD II CONNECTOR** – connects the scan tool to the vehicle's Data Link Connector (DLC).
- 14) **USB CONNECTOR** – connects the scan tool to the PC for printing and upgrading.

## Specifications

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**Table 2-1 Specifications**

Item	Description
<b>Display</b>	TFT color display (320x240 dpi)
<b>Connectivity</b>	USB mini 2.0 OBD II DB15
<b>Operating Temp.</b>	0°C to 60 °C (32°F to 140°F)
<b>Storage Temp.</b>	-20°C to 70 °C (-1°F to 158°F)

Item	Description
<b>External Power</b>	9.0 to 28.0 V power provided via vehicle battery
<b>Dimensions (LxWxH)</b>	183 mm (7.2") x 91 mm (3.58") x 33 mm (1.3")
<b>Weight</b>	242 g (0.533 lb.)

## Accessories Included

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- 1) **User Manual** – instructions on tool operations.
- 2) **Quick Guide** – instructions on registering tool and updating software.
- 3) **OBD II Cable** – used to connect tool to vehicle for communication and to power tool.
- 4) **USB Cable** – used to connect to Mac or Windows PC for printing data saved on tool and to update the tool's software.
- 5) **Adapters** – DEUTSCH-9 and DEUTSCH-6.

## Navigation Characters

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Characters used to help navigate the scan tool are:

- 1) **\$** – identifies the control module number from which data is retrieved. Indicates the Test ID in On-Board Monitor Test.
- 2) **?** – indicates help or DTC Guide information is available.
- 3) **G** – indicates graphic viewing is available.

## Keyboard

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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

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The scan tool is powered via the vehicle Data Link Connector (DLC). Follow the steps below to turn on the scan tool:

- 1) Connect the OBD II 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 attaching the OBD II cable.
- 3) Plug OBD II cable to the vehicle's DLC.

## DTC Lookup

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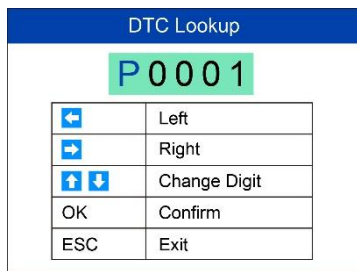
The **DTC Lookup** function is used to search for definitions of DTCs stored in the DTC library and for DTC Guide information.

- 1) From **Main Screen**, use the **UP/DOWN** scroll button and **LEFT/RIGHT** scroll button to select **DTC Lookup** and press the **OK** button.



**Figure 2-2 Main Menu**

- 2) From **DTC Lookup** screen, use the **LEFT/RIGHT** button to move to the desired character, use the **UP/DOWN** button to change selected digit/character and press the **OK** button to confirm.



**Figure 2-3 Sample DTC Lookup Screen**

- 3) View the data trouble code (DTC) definition on screen. When DTC definition is on more than one screen, use the **LEFT/RIGHT** button or

**UP/DOWN** button to view additional information on previous/next screens.

- If retrieved DTCs contain any manufacturer specific codes, the AutoVIN function embedded in this tool will automatically display the definition of the code.
  - If definition could not be found, the scan tool displays **"Please refer to vehicle service manual!"**
  - For **DTC Guide** information, press the "?" **Help** button.
- 4) To view previous or next DTC in the built-in DTC library, use the **LEFT/RIGHT** button.
  - 5) To enter another DTC, press the **ESC** button to return to previous screen.
  - 6) To exit to **Main Screen**, press the **ESC** button.

## System Setup

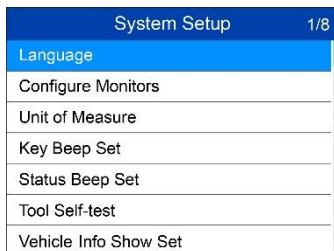
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The scan tool allows you to make the following adjustments and settings:

- 1) **Language**: Selects the desired language.
  - 2) **Configure Monitors**: Sets the monitors you want to test.
  - 3) **Unit of measure**: Sets the unit of measure to English or Metric.
  - 4) **Key Beep Set**: Turns on/off beep.
  - 5) **Status Beep Set**: Turns on/off the I/M Readiness Status beep.
  - 6) **Tool Self-test**: Checks if the LCD display, LED lamps and keyboard are working normally.
  - 7) **Update Mode**: Accesses the Update Mode.
- *Tool operates with default settings until changed.*

### To enter the Setup menu

From the **Main Screen**: Use the **UP/DOWN** scroll button and **LEFT/RIGHT** scroll button to select **Setup**, and press the **OK** button. Follow the instructions to make adjustments and settings as described in the above setup options.



**Figure 2-4 Sample System Setup Screen**

## Language

- *English is the default language.*
- 1) From **System Setup** screen, use the **UP/DOWN** scroll button to select **Language**, and press the **OK** button.
  - 2) Use the **UP/DOWN** scroll button to select the desired language and press the **OK** button to save your selection and return to previous screen.



**Figure 2-5 Sample Language Screen**

## Configure Monitors

From **System Setup** screen, use the **UP/DOWN** scroll button to select **Configure Monitors**, and press the **OK** button.



Configure Monitors	1/3
SAE J1979 Standard	
SAE J1939 Standard	
Reset Factory Default	

**Figure 2-6 Sample Configure Monitors Screen**

On this menu, configure the monitors required to test spark ignition and compression ignition, the number of monitors to pass diagnosis, and restore the default settings.

Both SAE J1979 Standard and SAE J1939 Standard contain three options: Spark IGN Required Monitors, Compression IGN Required Monitors and Allowed INC Monitors.

#### *Spark IGN Required Monitors*

From **Configure Monitors** screen, use the **UP/DOWN** scroll button to select **Spark IGN Required Monitors**, and press the **OK** button.

The monitors for spark ignition engines display as below.

**Table 2-2**

Spark IGN Required Monitors			
√	MIS	√	EVAP
√	FUEL	√	AIR
√	CCM	√	O2S
√	CAT	√	HTR
√	HCAT	√	EGR

#### *Compression IGN Required Monitors*

From **Configure Monitors** screen, use the **UP/DOWN** scroll button to select **Compression IGN Required Monitors**, and press the **OK** button.

The monitors for compression ignition engines display as below.

**Table 2-3**

<b>Compression IGN Required Monitors</b>			
√	MIS	√	BP
√	FUEL	√	EGS
√	CCM	√	PM
√	HCCAT	√	EGR
√	NCAT		

### *Allowed INC Monitors*

From **Configure Monitors** screen, use the **UP/DOWN** scroll button to select **Allowed INC Monitors**, and press the **OK** button.

Emissions tests vary depending on the geographic or regional area in which the vehicle is registered. To this, the scan tool provides a more flexible way to meet different standards by allowing the user to select 0, 1, 2, or 3 “not complete” monitors in test.

### *Reset Factory Default*

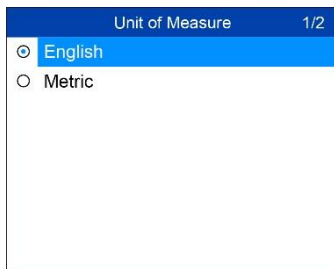
From **Configure Monitors** screen, use the **UP/DOWN** scroll button to select **Reset Factory Default**, and press the **OK** button.

It will restore the default configuration settings in the **Configure Monitors** menu, and delete any customized settings. In this case, **Spark IGN Required Monitors** and **Compression IGN Required Monitors** will include all the available monitors, and the **Allowed INC Monitors** will be set to 1.

The tool will display a message to ask for your confirmation. Select **Yes** to proceed and **No** to exit without change.

## **Unit of Measure**

- *Metric is the default measurement unit.*
- 1) From **System Setup** screen, use the **UP/DOWN** scroll button to select **Unit of Measure** and press the **OK** button.
  - 2) From **Unit of Measure** screen, use the **UP/DOWN** scroll button to select the desired unit of measurement.



**Figure 2-7 Sample Unit of Measure Screen**

- 3) Press the **OK** button to save your selection and return to previous menu.

## Key Beep Set

This function allows you to turn on/off the built-in speaker for key pressing.

- *The default setting is Beep On.*

- 1) From **System Setup** screen, use the **UP/DOWN** scroll button to select **Key Beep Set** and press the **OK** button.
- 2) From **Key Beep Set** menu, use the **UP/DOWN** scroll button to select **Beep ON** or **Beep OFF** to turn on/off the beep.



**Figure 2-8 Sample Key Beep Set Screen**

- 3) Press the **OK** button to save your selection and return to previous menu.

## Status Beep Set

- *The default setting is Beep On.*

This function allows you to turn on/off the built-in speaker as an indicator during diagnostic testing. Different audio tones correspond to different LED lights. This function is invaluable when performing diagnostics alone, or while working in bright areas where LED illumination alone is not sufficient.

- 1) From **System Setup** screen, use the **UP/DOWN** scroll button to select **Status Beep Set** and press the **OK** button.
- 2) From **Status Beep Set** menu, use the **UP/DOWN** scroll button to select **Beep ON** or **Beep OFF** to turn on/off the beep.



**Figure 2-9 Sample Status Beep Set Screen**

- 3) Press the **OK** button to save your selection and return to previous menu.

## **Tool Self-test**

The **Tool Self-test** function checks if the display, LED lamps and keyboard are working properly.

### *Display test*

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

- 1) From **System Setup** screen, use the **UP/DOWN** scroll button to select **Tool Self-test**, and press the **OK** button.
- 2) Select **Display Test** from **Tool Self-test** menu and press the **OK** button to start test.



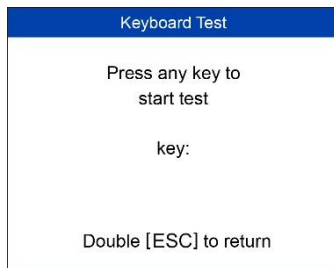
**Figure 2-10 Sample Tool Self-test Screen**

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

## Keyboard Test

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

- 1) Use the **UP/DOWN** scroll button to select **Keyboard Test** from the **Tool Self-test** menu, and then press the **OK** button.
- 2) Press any key to start test. When you press a key, the key name should display on screen. If the key name does not display, the key is not functioning.



**Figure 2-11 Sample Keyboard Test Screen**

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

## LED Test

The **LED Test** function verifies if the I/M Readiness LED indicator lamps are functioning properly.

- 1) Use the **UP/DOWN** scroll button to select **LED Test** from the **Tool Self-test** menu, and then press the **OK** button.
- 2) In the **LED Test** menu, use the **UP/DOWN** scroll button to select one or more LED lamps to test. The LED should turn on or off according to the selected commands.



**Figure 2-12 Sample LED Self-test Screen**

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

## Vehicle Info Show Set

This function allows you to turn on/off the Vehicle Info display when entering the test vehicle through OBDII function.

- *The default setting is Show On.*
- 1) From **System Setup** screen, use the **UP/DOWN** scroll button to select **Vehicle Info Show Set** and press the **OK** button.
  - 2) From **Vehicle Info Show Set** menu, use the **UP/DOWN** scroll button to select **SHOW ON** or **SHOW OFF** to turn on/off the Vehicle Info screen.
  - 3) Press the **OK** button to save your selection and return to previous menu.

## Update Mode

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

To update your scan tool, you need the following items.

- AutoLink® AL529HD
- A Mac-based or Windows-based computer or laptop with USB ports
- The provided USB cable

### *Register the Tool*

The tool must be registered prior to updating it. Register the tool on our website. Visit the site to download software update programs, research tools and retrieve warranty information.

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### **NOTE**

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

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1. Visit the website.
2. If you already have an Autel account, Sign In with your account ID and password.
3. If you are a new member to Autel, click on the **Create Autel ID** button on the left side of the screen to create an ID.
4. Enter the required information in the input fields, and click the **Get**

**Verification Code** button to get a verification code for email validation.

5. The online system will automatically send a verification code to the registered email address. Input the code in the Verification code field and complete other required fields. Read through Autel's Terms and Conditions and click on Agree, and then click **Create Autel ID** at the bottom. A product registration screen will display.
6. The device's serial number and password is located in the [About](#) section of the Settings application on the tool.
7. Select your product model, enter the product serial number and password on the Product Registration screen, and click **Submit** to complete the registration procedure.

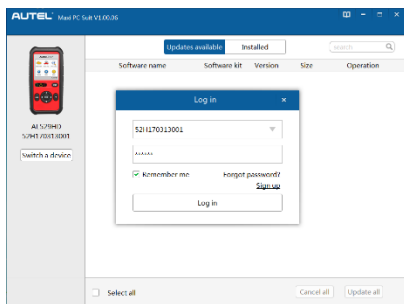
### Update Procedure

Autel frequently releases software updates to download.

Connect the tool to a Mac-based or Windows-based computer using the included USB cable.

Follow the update procedure to finish updating. The Windows version is taken as an example here.

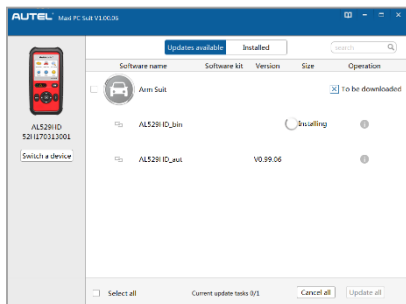
1. Download the **Maxi PC Suite > Support & Updates > Firmware & Downloads > Update Client**, and install to your Windows-based computer.
2. Run the **Maxi PC Suite**. Wait for the Log In window to display.



**Figure 2-13 Sample Log In Window**

3. Connect the scan tool to your computer with the supplied USB cable.
4. From **System Setup** screen in scan tool, select **Update Mode**, and press the **OK** button.

5. Enter your Autel ID and password and wait for the Update window to display. If you forget your password, click the **[Forget Password?]** link to our website and retrieve your password. Or click **Sign up** to create an Autel ID to continue.
6. Select tool and serial number, click **OK** to continue.
7. In the **Update** window, select the appropriate files to install.



**Figure 2-14 Sample Update Window**

Generally, there are two ways to update programs:

### Batch Update

1. Select the programs to update by checking the boxes next to those items. Then click the **Update All** button on the bottom right of screen. Click the **Clear All** button to deselect files.
2. Or, click on the **Select All** checkbox on the bottom left of screen and all updatable items will be selected. Click the **Update All** button on the right of the screen.
3. When the download is completed, the programs will be automatically installed. The new version will replace the old version.

### Single Update

1. Locate the desired update and click the **Update** button in the same line.
2. The downloaded programs will automatically install. The update will replace the existing version of the software.



## About

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The **About** function displays important tool information including serial number and software version number.

- 1) From **Main Screen**, use the **UP/DOWN** scroll button and **LEFT/RIGHT** scroll button to select **About** and press the **OK** button; wait for the **About** screen to display.
- 2) View tool information on screen.



**Figure 2-15 Sample About Screen**

## Vehicle Coverage

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The AutoLink® AL529HD OBDII/EODB Scanner is specially designed to work with all OBD II compliant vehicles, including those equipped with the Control Area Network (CAN) protocol. The EPA requires all domestic, Asian and European vehicles, 1996 and newer (including light trucks), sold in the United States must be OBD II compliant.

A small number of 1994 and 1995 model year gasoline vehicles are OBD II compliant. To verify if a 1994 or 1995 vehicle is OBD II compliant, check the Vehicle Emissions Control Information (VECI) Label which is located under the hood or by the radiator of most vehicles. If the vehicle is OBD II compliant, the label will designate "OBD II Certified". Additionally, government regulations mandate that all OBD II compliant vehicles must have a "common" sixteen-pin Data Link Connector (DLC).

For your vehicle to be OBD II compliant it must have a 16-pin DLC (Data Link Connector) under the dash and the Vehicle Emission Control Information Label must state that the vehicle is OBD II compliant.

# Product Troubleshooting

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This section describes problems that may be encountered while using the scan tool.

## Vehicle Linking Error

A communication error occurs if the scan tool fails to communicate with the vehicle's ECU (Engine Control Unit). Perform the following steps to resolve error:

- ✓ Verify that the ignition is ON.
- ✓ Ensure the scan tool's OBD II connector is securely connected to the vehicle's DLC.
- ✓ Verify that the vehicle is OBD2 compliant.
- ✓ 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, do the following:

- ✓ Check if the scan tool's OBD II 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.

## **LED lamps not working**

If the LED lamps don't light during I/M Readiness testing, do the following:

- ✓ Make sure the OBD II cable is connected to the DLC securely.
- ✓ Verify the ignition key is in the KOER position.
- ✓ Run the LED Test in the System Setup menu. If the tool fails this test, there is a problem with the LED lamp. Please contact Autel Tech Support or your local tool distributor.

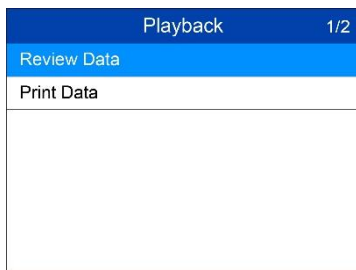
# 3 Playback

The **Playback** function allows viewing and printing of data from last recorded data.

## Review Data

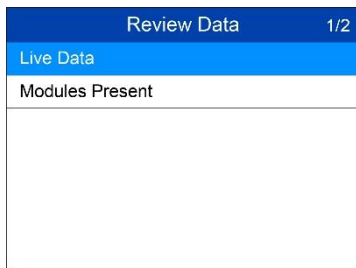
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- 1) Use the **UP/DOWN** scroll button and **LEFT/RIGHT** scroll button to select **Playback** from **Main Screen**, and press the **OK** button.
- 2) Select **Review Data**, and press the **OK** button.



**Figure 3-1 Sample Playback Screen**

- 3) Select the desired item from **Review Data** menu, and press **OK**.



**Figure 3-2 Sample Review Data Menu**

- If no data from previously tested vehicle is recorded, only the Modules Present data containing module ID and protocol type can be viewed.

- Diagnostics results can be reviewed from this list only when trouble codes are detected in previous tests.
- 4) Select the Location of the test records. A maximum of the three records can be saved. If there is only one record saved in the tool, then only one Location will display.



**Figure 3-3 Sample Location Selection Screen**

- 5) View the selected data on the screen.

1 of 1 frame		3/147
DTC_CNT		2
FUEL_TYP		--
ALCH_PCT(%)		100
EVAP_VPA(kPa)		327.675
EVAP_VP(Pa)		-1
STSO2FT1(%)		99.2
STSO2FT3(%)		99.2

**Figure 3-4 Sample Data Screen**

**NOTE**

If there is no data stored for selected item, a "Not Supported or Stored No Data!" message displays on the screen.

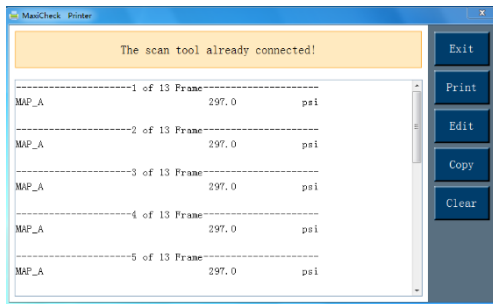
## Print Data

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

## NOTE

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

1. Download the **Maxi PC Suite** and install.
2. Connect the tool to computer using the supplied USB cable.
3. Run **Autel Printer** software on the computer.
4. Select **Playback** on the Main Screen of the tool. On data menu screen, select **Print Data** and then select the data you want to print. Wait for the review window to display, and then select **Print** function. The selected file will upload to your computer.
5. The **Printer** will display as below.



**Figure 3-5 Sample Printer Screen**

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

# 4 OBD II Diagnostics

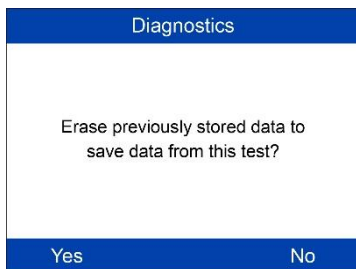
The AutoLink® AL529HD not only supports OBD II Diagnostics for gasoline vehicles, but also supports two more protocols for high-duty vehicle: J1939 and J1708.

When more than one vehicle control module is detected by the scan tool, you will be prompted to select the module with retrievable data. The Power train Control Module [PCM] and Transmission Control Module [TCM] are the most commonly scanned modules.

**CAUTION:** *Don't connect or disconnect the scan tool with the ignition is on or engine running.*

- 1) Turn the ignition off.
- 2) Locate the vehicle's 16-pin Data Link Connector (DLC).
- 3) Plug the tool into the vehicle's DLC.
- 4) Turn the ignition on. Engine can be off or running.
- 5) Turn on the scan tool. Use the **UP/DOWN** scroll button to select **OBDII/EOBD** from the **Main Screen**.
- 6) Press the **OK** button to wait for the Menu to display. The tool will display OBD II protocols until it has detected the vehicle's communication protocol.
  - If the scan tool fails to communicate with the vehicle's ECU (Engine Control Unit) more than three times, a "LINKING ERROR!" message displays on the tool.
  - ✓ Verify the ignition is ON;
  - ✓ Check if the scan tool's OBD II cable 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 on and repeat step 5.

- If the “LINKING ERROR” message continues to display, contact your local distributor or customer service for assistance.
- 7) You will be prompted to erase previously stored data.
- Review previously stored data before erasing.



**Figure 4-1 Sample Erase Previous Data Screen**

- 8) To erase the data, press the **OK** button; if you do not want to erase the data, press **ESC** to exit or use **LEFT/RIGHT** button to select **NO** and press **OK** to continue.
- 9) View a summary of system status (MIL status, DTC counts, Monitor status) on screen. Wait a moment or press any key for **Diagnostic Menu** to display.

The screenshot shows a screen titled "System Status" with a white background and a blue header. It displays a list of system metrics and their current status.

System Status	
MIL Status	OFF
Codes Foud	0
Monitors N/A	2
Monitors OK	3
Monitors INC	5

**Figure 4-2 Sample System Status Screen**

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



## Read Codes

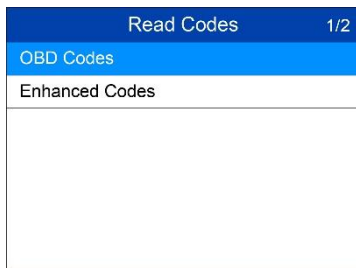
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- ◆ *The Read Codes function can be performed with the key on, engine off (KOEO) or with the key on, engine running (KOER).*
  - ◆ *Stored Codes are also known as “hard codes”, which are fault codes, or trouble codes that have been stored in the vehicle computer memory because the faults have reoccurred for more than a specified amount of key-cycles. These codes will cause the control module to illuminate the malfunction indicator light (MIL) when emission-related faults occur.*
  - ◆ *Pending Codes are also referred to as “maturing codes” or “continuous monitor codes”. They indicate problems that the control module has detected during the current or last driving cycle but are not as yet considered serious. Pending Codes will not cause a malfunction indicator light (MIL). If the fault does not occur within a certain number of warm-up cycles, the code clears from memory.*
  - ◆ *Permanent Codes are DTCs that are “confirmed” and are retained in the non-volatile memory of the vehicle’s computer until the appropriate monitor for each DTC has determined that the malfunction is no longer present and is not causing the MIL. Permanent DTCs are stored in non-volatile memory and can not be erased by any diagnostics service or by disconnecting power to ECU.*
- 1) Use **UP/DOWN** scroll button to select **Read Codes** from **Diagnostic Menu** and press **OK** button.

Diagnostic Menu	1/7
Read Codes	
Erase Codes	
Live Data	
View Freeze Frame	
I/M Readiness	
Vehicle Info.	
Moudules Present	

**Figure 4-3 Sample Diagnostic Menu**

- 2) Use the **UP/DOWN** scroll button to select **OBD Codes** or **Enhanced Codes** from the **Read Codes** menu and press the **OK** button. Enhanced Codes contains the codes for GM, Ford and Chrysler.



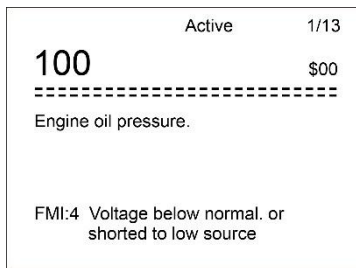
**Figure 4-4 Sample Read Codes Screen**

- If no codes are found, a message will display “**No codes are stored in the module!**” Wait a moment or press any key to return to previous screen.

**NOTE**

Permanent Codes function is available only for vehicles supporting the CAN protocols.

- 3) View DTCs and their definitions on screen.



**Figure 4-5 Sample DTC Screen**

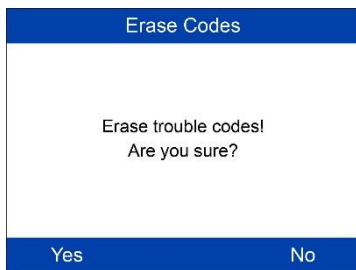
- 4) If more than one DTC is found, use the **LEFT/RIGHT** scroll button to review each code.
  - If retrieved DTCs contain any manufacturer specific or enhanced codes, the tool’s AutoVIN technology will automatically display the definition of the code.

# Erase Codes

---

## NOTE

1. 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 repairs or services have been performed.
  2. Even if deleted, codes will again display if the underlining fault causing the code is not addressed.
- 
3. *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 displays for your confirmation.



**Figure 4-6 Sample Erase Codes Screen**

- If you do not want to proceed with erasing codes, press **ESC** button or use **LEFT/RIGHT** scroll button to select **NO** to exit. A message of "**Command Cancelled!**" displays. Wait a few seconds or press any key to return to **Diagnostic Menu**.
- 3) Press the **OK** button to confirm.
    - If the codes are cleared successfully, an "**Erase Done!**" confirmation message displays.
    - If the codes are not cleared, then an "**Erase Failure. Turn Key on with Engine off!**" message displays.
  - 4) Press any button to return to **Diagnostic Menu**.

# Live Data

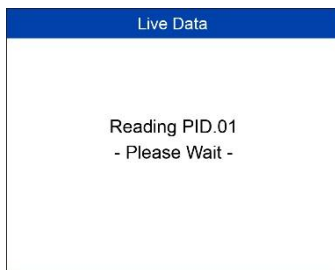
---

In this function, you can not only read the live data but also record data for later review. But for high-duty vehicles, only View Data is supported for now.

## View Data

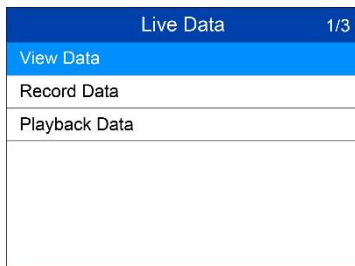
The **View Data** function allows viewing of live or real time PID data of vehicle's computer module(s).

- 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 4-7 Sample Live Data Screen 1**

- 3) Use the **UP/DOWN** scroll button to select **View Data** from **Live Data** menu and press the **OK** button.



**Figure 4-8 Sample Live Data Screen 2**

## View Complete Data Set

- 1) To view complete set of data, use **UP/DOWN** scroll button to select **Complete Data Set** from **View Data** menu and press the **OK** button.

View Data	1/2
Complete Data Set	
Custom Data Set	

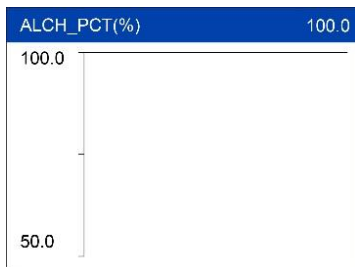
**Figure 4-9 Sample View Data Menu**

- 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.

View Data	1/147
DTC_CNT	2
FUEL_TYP	--
ALCH_PCT(%)	100
EVAP_VPA(kPa)	327.675
EVAP_VP(Pa)	-1
STSO2FT1(%)	99.2
STSO2FT3(%)	99.2

**Figure 4-10 Sample Complete Data Screen**

- The number “x” to the right of the screen indicates the sequence of the highlighted item.
- To view full name of the highlighted PID, press the “?” button.
- If the **G** icon displays when a PID is highlighted, graph data is available. Press **OK** to view graph.

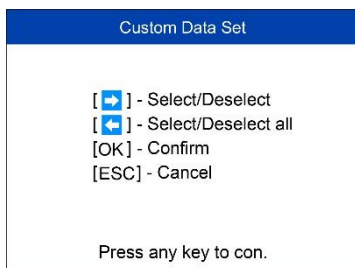


**Figure 4-11 Sample Data Graph Screen**

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

### *View Custom Data Set*

- 1) To view customized PID data, use the **UP/DOWN** scroll button to select **Custom Data Set** from **View Data** menu and press the **OK** button.
- 2) Follow on-screen instructions.



**Figure 4-12 Sample Custom Data Set Screen 1**

- 3) Use the **RIGHT** button to deselect/select data parameters, and use the **UP/DOWN** scroll button to move up and down. Selected parameters are marked with solid squares.

Custom Data Set		3/147
<input checked="" type="checkbox"/>	DTC_CNT	#01
<input type="checkbox"/>	FUEL_TYP	
<input checked="" type="checkbox"/>	ALCH_PCT	#02
<input type="checkbox"/>	EVAP_VPA	
<input type="checkbox"/>	EVAP_VP	
<input type="checkbox"/>	STSO2FT1	
<input type="checkbox"/>	STSO2FT3	

**Figure 4-13 Sample Custom Data Set Screen 2**

- The number “x” to the upper right corner of the screen indicates sequence of highlighted item; and “#x” are the order that the parameters are selected and will be displayed.
  - Press the **LEFT** button to deselect all marked items or select all items. A message displays for your confirmation.
  - If you decide to deselect these items, press **OK**; if you decide not to, press **ESC** or use the **LEFT/RIGHT** scroll button to select **NO** to continue PID selections.
- 4) Press the **OK** button to view selected PIDs on screen.

Live Data		1/2
DTC_CNT		2
ALCH_PCT(%)		100.0

**Figure 4-14 Sample Custom Data Set Screen 3**

- 5) 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. A recording includes 5 frames of live data before trigger event and several frames after trigger event.

There are two trigger modes used to record data:

- Manual Trigger** – press the **OK** button to start recording.
- DTC Trigger** – automatically records PID data when a fault triggers a DTC on the vehicle.



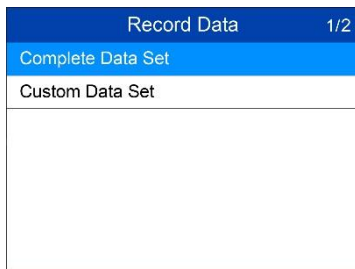
### NOTE

**DO NOT** drive and operate the scan tool at the same time!

To record live data, use the **UP/DOWN** scroll button to select **Record Data** from **Live Data** menu and press the **OK** button.

### *Record Complete Data Set*

- 1) To record complete set of live data, use the **UP/DOWN** scroll button to select **Complete Data Set** from **Record Data** menu and press the **OK** button.



**Figure 4-15 Sample Record Data Screen**

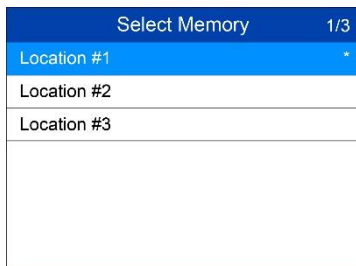
- 2) Use the **UP/DOWN** scroll button to select a trigger mode and press the **OK** button.



**Figure 4-16 Sample Pick Trigger Mode Screen**

- If data from previously tested vehicle is not erased, data from current test will be stored in the tool's temporary memory.
- 3) Use the **UP/DOWN** scroll button to select a memory location and press the **OK** button.





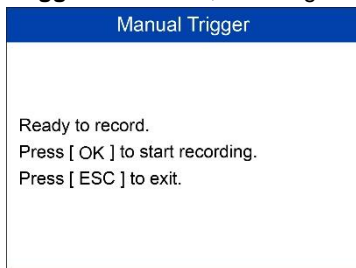
**Figure 4-17 Sample Select Memory Screen 1**

- The asterisk (\*) icon on the screen indicates that a previous recording is stored in the highlighted location.
- If you select a location marked with an asterisk (\*) icon, a message prompting to overwrite old recording displays.



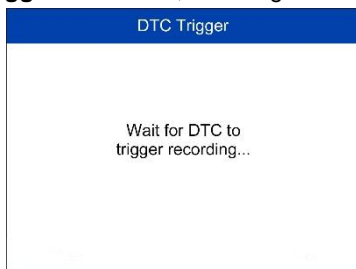
**Figure 4-18 Sample Select Memory Screen 2**

- If you wish to proceed with overwriting the recording, press the **OK** button; if you do not wish to overwrite it, use the **LEFT/RIGHT** button to select **NO** or press the **ESC** button to pick another memory location.
- 4) Observe on-screen instructions.
- If **Manual Trigger** is selected, following screen displays:



**Figure 4-19 Sample Manual Trigger Screen**

- If **DTC Trigger** is selected, following screen displays.



**Figure 4-20 Sample DTC Trigger Screen**

- 5) Wait for DTC to trigger or press **OK** to start recording.
  - ◆ *Drive till a DTC is detected when DTC Trigger is selected. If no DTCs are detected, press ESC to exit recording.*

Recording... 1/5		1/147
DTC_CNT		2
FUEL_TYP		--
ALCH_PCT(%)		100
EVAP_VPA(kPa)		327.675
EVAP_VP(Pa)		-1
STSO2FT1(%)		99.2
STSO2FT3(%)		99.2

**Figure 4-21 Sample Recording Data Screen**

- The number “x/x...” in the upper right corner of the screen indicates the number of recorded frames out of the maximum frames that can be recorded.
- 6) The scan tool continues to record PID data until the **ESC** button is pressed, selected memory location is full, or it completes recording. A message will display asking if the recording should be played back.



**Figure 4-22 Sample Recording Done Screen**

- If you wish to playback recorded data, press the **OK** button; if you do not wish to playback, press the **ESC** button, or use **LEFT/RIGHT** button to select **NO** and press the **OK** button to return to **Record Data** menu.

### *Record Custom Data Set*

- 1) To record customized data, use the **UP/DOWN** scroll button to select **Custom Data Set** from **Record Data** menu and press the **OK** button.
- 2) Observe on-screen instructions. Press the **OK** button to continue; press the **ESC** button, or use **LEFT/RIGHT** button to select **NO** and press the **OK** button to return to **Record Data** menu.
- 3) Use the **RIGHT** button select/deselect data parameters. Selected parameters are marked with solid squares. Press the **OK** button to confirm.
  - If you wish to deselect all marked items, press **LEFT** button.
  - A message displays for your confirmation.
  - If you decide to deselect these items, press **OK**; if you decide not to, press the **ESC** button, or use the **UP/DOWN** button to select **NO** and press **OK** to continue PID selections.
- 4) Use the **UP/DOWN** scroll button to select a trigger mode and press the **OK** button.
  - If data from previously tested vehicle is not erased, data from current test will be stored in temporary cache.
- 5) Use the **UP/DOWN** scroll button to select a memory location and press the **OK** button.
- 6) Follow on-screen instructions to select DTC trigger mode.
- 7) Wait for DTC to trigger recording or press **OK** to start recording.
- 8) The scan tool continues recording PID data until user presses **ESC** button, the selected memory location is full, or it completes recording. A message prompting to playback data shows on the screen.
  - If you wish to playback recorded data, press the **OK** button; if you do not wish to playback, press the **ESC** button, or use the **LEFT/RIGHT** button to select **NO** and press the **OK** button to return to **Record Data** menu.

## Playback Data

The **Playback Data** function allows viewing of previously stored PID data.

- 1) To playback recorded data, use the **UP/DOWN** scroll button to select **Playback Data** from **Live Data** menu and press the **OK** button.
  - You are also allowed to playback recorded data immediately after recording.
- 2) Use the **UP/DOWN** button to select the memory location marked with an asterisk (\*) icon.

Select Memory	1/3
Location #1	*
Location #2	
Location #3	

**Figure 4-23 Sample Select Memory Screen 3**

- If there is no recording in selected location, a message “**Not Supported or Stored No Data**” displays on the screen.
- 3) Use the **UP/DOWN** button to view recorded PIDs of each frame.

1 of 1 frame	3/147
DTC_CNT	2
FUEL_TYP	--
ALCH_PCT(%)	100
EVAP_VPA(kPa)	327.675
EVAP_VP(Pa)	-1
STSO2FT1(%)	99.2
STSO2FT3(%)	99.2

**Figure 4-24 Sample Playback Data Screen**

- 4) Use the **LEFT/RIGHT** button to view PIDs of next or previous frames.

## View Freeze Frame Data

---

**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). 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 **View Freeze Frame** from **Diagnostic Menu** and press the **OK** button.
- 2) Wait while the scan tool validates the PID MAP.
- 3) If retrieved information displays on more than one screen, use the **DOWN** scroll button, as necessary, until all the data has displayed.

View Freeze Frame		1/7
SPN520748		
ENGINE TQ MODE		Other
EIM_1_PRES(kPa)		18
ENGINE SPEED(rpm)		0
CURRENT SPD_LOAD_PC(%)		0
ect(°C)		99
WHL-BASED VEH SPD(km/h)		0.0

**Figure 4-25 Sample View Freeze Frame Screen**

- If no freeze frame data is available, the message “**No freeze frame data stored!**” displays.
- 4) To view full name of a PID, use the **UP/DOWN** scroll button to select the PID, and press the **HELP** button.
  - 5) Press **ESC** button to return to previous screen.

## Retrieve I/M Readiness Status

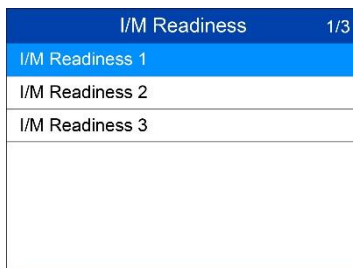
---

**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 state emissions compliance.

**NOTE**

By clearing trouble codes you also clear the readiness status for the individual emission system readiness tests. In order to reset these monitors, the vehicle must be driven through a complete drive cycle with no trouble codes in memory. Amount of time needed for reset vary by vehicle.

There may be three options for I/M Readiness, select one to view the details.

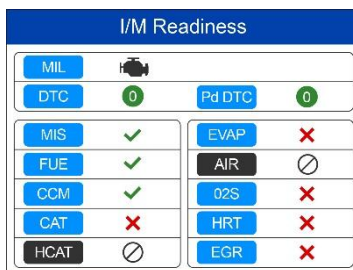


**Figure 4-26 Sample I/M Readiness Screen 1**

There are two ways to retrieve I/M readiness status.

## Retrieve I/M Readiness status with One-Click I/M Readiness Key

Press the **One-Click I/M Readiness Key**, to retrieve I/M readiness status. The screen will display as below. The LEDs colors and the audio tones readiness status.



**Figure 4-27 Sample I/M Readiness Screen 2**

The green, yellow and red LEDs provide a quick way to help you determine if a vehicle is ready for an Emission Test.

- ✓ **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 the vehicle.

The LED and audio tone are interpreted as below:

### *LED Interpretation*

- **GREEN LED** – indicates that engine systems are “OK” and operating normally (the number of Monitors supported by the vehicle that have run and performed their self-diagnostic testing is in the allowed limit. MIL is off). There are neither stored nor pending DTCs. The vehicle is ready for an Emissions Test, and there is a good possibility that it can be certified.
- **YELLOW LED** – with MIL off, there may be three possible conditions to cause the yellow LED to light.
  - ✧ If a “Stored” Diagnostic Trouble Code is causing the Yellow LED to light, it is still possible that the vehicle will be allowed to be tested for emissions and certified.
  - ✧ If a “Pending” Diagnostic Trouble Code is causing the Yellow LED to light, it is still possible that the vehicle will be allowed to be tested for emissions and certified.
  - ✧ The Yellow LED will also light if the monitors do not complete their tests. Each state’s emissions standards differ on the number of tested monitors needed to meet vehicle emissions compliance.

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### ⊘ **NOTE**

Confer with your automotive technician about the status results of each monitor to determine if the vehicle is ready for your state’s emissions test.

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- **RED LED** – indicates there is a problem with one or more of the vehicle’s system. The test of a vehicle resulting in a lit red LED lighting is not ready for an Emissions Test. The red LED is also an indication that there are DTCs present. The MIL lamp on the vehicle’s instrument panel will light steady. The problem that is causing the red LED to light must be repaired before an Emissions Test can be performed. It is also

suggested that the vehicle be inspected/repaired before driving the vehicle further.

If the RED LED lights, there is a definite problem present in the system(s). In this case, you have the following options:

- ✧ Repair the vehicle yourself. If you are going to perform the repairs yourself, proceed by reading the vehicle service manual and following all its procedures and recommendations.
- ✧ Take the vehicle to a professional to have it serviced. The problem(s) causing the red LED to light must be repaired before the vehicle undergoes Emissions Testing.

### *Audio Tone Interpretation*

The audio tone is configured according to the I/M Readiness Status.

**Table 4-1**

<b>LED Light</b>	<b>Audio Tone</b>	<b>Beep Interval</b>
Green	Two long beeps	5 seconds
Yellow	short, long, short beep	5 seconds
Red	Four short beeps	5 seconds

After you have read the information, press **ESC** to exit. The other buttons are disabled to prevent misoperation.

### **Retrieve I/M Readiness status in typical way**

- 1) Use the **UP/DOWN** scroll button to select **I/M Readiness** from **Diagnostic Menu** and press **OK** button.
- 2) Select the sequence of the I/M Readiness.
- 3) The details will display on the screen for selection.



I/M Readiness	1/19
Active troublecodes	12
Previously active diagnostic trouble	0
OBD compliance	Minute
Misfire moitoring	Not supported

**Figure 4-28 Sample I/M Readiness Selection Screen**

- 4) Use the **UP/DOWN** scroll button 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) The LEDs and audio tone corresponding to different monitor status will be activated as below.

**Table 4-2**

LED Light	Audio Tone	Beep Interval
Green	Two long beeps	2 minutes
Yellow	short, long, short beep	2 minutes
Red	Four short beeps	2 minutes

- 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

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OBD II regulations set by the (Society of Automotive Engineers) SAE require vehicles monitors and tests on the oxygen (O2) sensors to identify problems related to fuel efficiency and vehicle emissions. These tests are done automatically when engine operating conditions are within specified limits. These test results are saved in the vehicle's 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 that communicate using a controller area network (CAN). For O2 Monitor Test results of CAN-equipped vehicles, see [On-Board Monitor Test](#) on page 43.

- 1) Use the **UP/DOWN** scroll button to select **O2 Monitor Test** from **Diagnostic Menu** and press **OK** button.
- 2) Wait 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.

O2 Monitor Test	1/2
02 Bank 1 Sensor 1	
02 Bank 1 Sensor 2	

**Figure 4-29 Sample O2 Monitor Test Screen 1**

- If the vehicle does not support the mode, a message displays on the screen.
- 4) View test results of selected O2 sensor.

O2 Monitor Test	1/9
Rich-Lean Threshold(V)	
Lean-Rich Threshold(V)	
Low for Switch(V)	
High for Switch(V)	
Rich-Lean Threshold(s)	
Lean-Rich Threshold(s)	
\$70(counts)	

**Figure 4-30 Sample O2 Monitor Test Screen 2**

- 5) Use the **UP/DOWN** scroll button to view additional data if available.
- 6) Press the **ESC** button to return to the previous menu.

## On-Board Monitor Test

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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.

The scan tool allows access to the results of on-board diagnostic monitoring tests for specific components/systems. The vehicle manufacturer is responsible for assigning "Manufacturer Defined Test IDs" and Component IDs for tests of different systems and components. The advanced feature of this scan tool enables you to read the definition of an On-Board Diagnostic Monitor ID.

**NOTE**

The scan tool will display a test definition if this definition is present in the vehicle's computer memory. If no such definition is present, the scan tool will only display the Test IDs.

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 determines if the components and monitors are OK.

- 1) Use the **UP/DOWN** scroll button to select **On-Board Mon. Test** from **Diagnostic Menu** and press the **OK** button.
- 2) Wait 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 displays the On-Board Monitors test results for specific monitored systems.

On-Board Mon. Test	1/4
Enhanced Evaporative Emissio...	
O2 Sensor Heater System Time...	
Exhaust Gas Recirculation Sys...	
Catalyst Efficiency Monitor	

**Figure 4-31 Sample On-board Mon. Test Screen 1**

- 5) From **On-Board Mon. Test** menu, use the **UP/DOWN** scroll button to select a test to view and press the **OK** button. Or, use the **LEFT/RIGHT** scroll button to view previous/next screen of test items.
  - If the vehicle being tested does not support the mode, an advisory message will display on the screen.

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

Enhanced Eaporative Emission	1/12
EVAP canister loading test	
EVAP excess vacuum test 1	
EVAP excess vacuum fail test 2	
EVAP excess vacuum pass tes...	
EVAP weak vacuum pass test 1	
EVAP weak vacuum fail test 1	
EVAP weak vacuum test 2 vac...	

**Figure 4-32 Sample On-board Mon. Test Screen 2**

- 6) Use the **UP/DOWN** scroll button to select the desired monitor from On-Board Mon. Test menu and press the **OK** button.
- 7) View test data on screen.

EVAP canister loading test	1/6
ID	04
Module	\$10
Test Value	0000
Min Limit	0000
Max Limit	----
Status	OK

**Figure 4-33 Sample On-board Mon. Test Screen 3**

**NOTE**

If the On-Board Monitor Test fails, this monitor item will be listed in red.

EVAP canister loading test	1/6
ID	04
Module	\$10
Test Value	0000
Min Limit	0000
Max Limit	----
Status	Fail

**Figure 4-34 Sample On-board Mon. Test Screen 4**

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

# Component Test

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The **Component Test** initiates 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 use different criteria and methods for stopping the test once it has been started. Before starting the Component Test, refer to the vehicle service manual for instructions to stop the test.

- 1) Use the **UP/DOWN** scroll button to select **Component Test** from **Diagnostic Menu** and press the **OK** button.
- 2) Wait for the scan tool to display the **Component Test** menu.



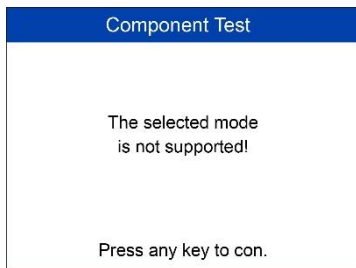
**Figure 4-35 Sample Component Test Screen 1**

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



**Figure 4-36 Sample Component Test Screen 2**

- 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, the message, "The select mode is not supported" will display.



**Figure 4-37 Sample Component Test Screen 3**

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

## View Vehicle Information

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

- 1) Use **UP/DOWN** scroll button to select **Vehicle Info.** from the **Diagnostic Menu** and press **OK** button.
- 2) A message displays to remind you to “Turn key with engine off!” Wait a moment or press any key to continue.



**Figure 4-38 Sample Vehicle Info. Screen 1**

- 3) Wait while the scan tool reads vehicle information.
  - If the vehicle does not support this mode, a message displays that the mode is not supported.
- 4) View the detailed vehicle information.

Vehicle Info.		1/2
Electronic diesel control:		\$00
Make:		CMMNS
Model:		6M e03D109
Serial Ver:		94967295
Unit Num(Power):		qawsedrftg
Software Id 1:		04963807
Software Id 2:		01001990

**Figure 4-39 Sample Vehicle Info. Screen 2**

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

## Modules Present

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

- 1) Use the **UP/DOWN** scroll button to select **Modules Present** from **Diagnostic Menu** and press **OK** button.
- 2) View modules present with their IDs and communication protocols.

Modules Present	
Electronic diesel control:	\$00
Engine brake system:	\$29

**Figure 4-40 Sample Modules Present Screen**

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



# 5 Ready Test

This function can be used as a convenient readiness test tool by automotive technicians to determine if the tested vehicle is ready for an emission test. By visual and audible indication, you will learn a vehicle's emissions readiness.

## General Information

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Repairs to the emissions-control systems of a 1996 or newer vehicle cause the vehicle's computer (ECU) memory to be cleared. The vehicle must go through a drive cycle to allow the ECU to perform a series of tests to ensure that the repair was successful, and before a state mandated emissions test can be conducted. But how will you know when it is ready?

With this scan tool, you don't have to drive around endlessly, continuously coming back to the repair shop for retest to check if all required tests by the ECU are completed. And you could also do a quick check of the vehicle to determine if it is ready to receive an emission test without the hassle of connecting your vehicle to the analyzer or having to use a complicated scan tool.

In the following cases, this function is especially useful.

- You bought a used car and the check engine light had been cleared to mask potential problems.
- You disconnected the battery for tune-ups and other engine repairs, dead battery replacement, car radio installation and car alarm installation.
- You used a scan tool to clear the DTCs.
- Your car has been sent for repairs.

# Ready Test Application

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This function displays which vehicle monitors have run, if they have been completed and the results of the testing. Results display on one screen providing an at-a-glance profile of the vehicle.

- Use the **UP/DOWN** scroll button and **LEFT/RIGHT** scroll button to select **Ready Test** from **Main Screen**, and press the **OK** button.



**Figure 5-1 Sample Ready Test Screen**

## As post-repair diagnostic tool

This function can be used (after the vehicle has done any emission-related repairs) to confirm that the repair has been performed successfully.

After repairs, some drive cycles are required to reset the monitoring systems. Drive cycles vary by vehicle and by monitor.

Use the following procedure to check if the repair has been done correctly:

- 1) Connect the scan tool to the vehicle's DLC and erase the DTC(s) from the vehicle's computer memory.
- 2) After the erase procedure is performed, status of most monitors will be changed. Leave the scan tool connected to the vehicle, and select **Ready Test** from **Main Screen**.
- 3) Continue to drive the vehicle until the scan tool notifies you that the drive cycle has been completed.
- 4) If the GREEN LED lights and the tool emits two long beeps, your vehicle is ready and the repair work is confirmed.

- 5) If the RED LED lights, your vehicle is not ready and if you have performed repairs, they have failed to correct the emissions issue.

## As pre-check diagnostic tool

Prior to having a vehicle inspected for state emissions compliance, use this function to check the readiness status.

- 1) While the scan tool is connected to the vehicle, select **Ready Test** from **Main Screen**. Drive the car until the scan tool notifies you safely with color LEDs and audible tone if your vehicle is ready to conduct state emission test.
- 2) If the GREEN LED lights and two long beeps are heard, your vehicle is ready and it should pass emissions testing.
- 3) If the RED LED lights, your vehicle is not ready and must be repaired before an emissions test can be performed.

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### NOTE

1. If you are driving the vehicle to perform a drive cycle ALONE, set the Status Beep On. The beep signifies that the monitors have run and the diagnostics testing completed. NEVER drive and operate the scan tool at the same time!
  2. This function displays the real time data of emission-related monitoring systems readiness status. Once the scan tool has finished other operations, for example, clearing trouble codes, the I/M Readiness Monitor Status program resets status of all the monitors to "INC" condition. The vehicle must be driven through a complete drive cycle to set the monitors to Ready status. Times for reset vary by vehicle. Please refer to your vehicle's service manual for drive cycle information.
  3. In this function, only the ESC button is available. The other buttons are disabled to prevent misoperation.
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## LED and Tone Interpretation

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Select **Ready Test** from the **Main Screen** and the screen displays as depicted below, including applicable monitors status, MIL state, Ignition type, DTCs (stored one and pending).

I/M Readiness			
MIL			
DTC	0	Pd DTC	0
MIS	✓	EVAP	✗
FUE	✓	AIR	⊘
CCM	✓	O2S	✗
CAT	✗	HRT	✗
HCAT	⊘	EGR	✗

**Figure 5-2 Sample I/M Readiness Screen**

If the scan tool is idle, the result will immediately display. If it is busy, it will wait till the current procedure finished. After viewing the status, press **ESC** button to exit.

- ✓ **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 the vehicle.

The LED and audio tone indications are interpreted as below:

## LED Interpretation

The green and red LEDs provide an easy way to check if emission-related monitoring systems have completed their self-diagnostic testing.

- 1) **GREEN LED** – your vehicle is **Ready**. Indicates that engine systems are “OK” and operating normally (the number of Monitors supported by the vehicle that have run and performed their self-diagnostic testing is in the allowed limit).
- 2) **RED LED** – your vehicle is **Not Ready**. Indicates that the number of Monitors supported by the vehicle that have run and performed their self-diagnostic testing is out of the allowed limit.

## Audio Tone Interpretation

The audio tone can be configured according to the I/M Readiness Status.

**Table 5-1**

<b>LED Light</b>	<b>Audio Tone</b>	<b>Beep Interval</b>
Green	Two long beeps	2 minutes
Red	No beep	

# 6 Compliance Information

## FCC COMPLIANCE

This device complies with Industry Canada's licence-exempt RSSs. Operation is subject to the following two conditions:

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

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

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

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### **WARNING**

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

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### **NOTE**

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

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

- Reorient or relocate the receiving antenna.

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

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

## **RF WARNING STATEMENT**

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

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

## **RoHS COMPLIANCE**

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

## **CE COMPLIANCE**

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

EMC Directive 2014/30/EU

R&TTE Directive 1999/5/EC

Low Voltage Directive 2014/35/EU