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In the event this product fails to operate under normal use, during the warranty period, due to defects in materials and workmanship, FOXWELL will, at its sole option, either repair or replace the product in accordance with the terms and conditions stipulated herein.

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b) The Product has been damaged from external causes such as collision with an object, or from fire, flooding, sand, dirt, windstorm, lightning, earthquake or damage from exposure to weather conditions, an Act of God, or battery leakage, theft, blown fuse, improper use of any electrical source, or the product was used in combination or connection with other product, attachments, supplies or consumables not manufactured or distributed by FOXWELL.

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b) The customer shall include a return address, daytime phone number and/or fax number, complete description of the problem and original invoice specifying date of purchase and serial number.

c) The customer will be billed for any parts or labor charges not covered by this limited warranty.

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e) If the product is returned during the limited warranty period, but the problem with the product is not covered under the terms and conditions of this limited warranty, the customer will be notified and given an estimate of the charges the customer must pay to have the product repaired, with all shipping charges billed to the customer. If the estimate is refused, the product will be returned freight collect. If the product is returned after the expiration of the limited warranty period, FOXWELL' normal service policies shall apply and the customer will be responsible for all shipping charges.

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# Safety Information

For your own safety and the safety of others, and to prevent damage to the equipment and vehicles, read this manual thoroughly before operating your scanner. The safety messages presented below and throughout this user's manual are reminders to the operator to exercise extreme care when using this device. Always refer to and follow safety messages and test procedures provided by vehicle manufacturer. Read, understand and follow all safety messages and instructions in this manual.

## Safety Message Conventions Used

We provide safety messages to help prevent personal injury and equipment damage. Below are signal words we used to indicate the hazard level in a condition.

### 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.

### CAUTION

Indicates a potentially hazardous situation which, if not avoided, may result in moderate or minor injury to the operator or to bystanders.

## Important Safety Instructions

And always use your scanner as described in the user's manual, and follow all safety messages.

### WARNING

- Do not route the test cable in a manner that would interfere with driving controls.
- Do not exceed voltage limits between inputs specified in this user's manual.
- Always wear ANSI approved goggles to protect your eyes from propelled objects as well as hot or caustic liquids.
- Fuel, oil vapors, hot steam, hot toxic exhaust gases, acid, refrigerant and other debris produced by a malfunction engine can cause serious injury or death. Do not use the scanner in areas where explosive vapor may collect, such as in below-ground pits, confined areas, or areas that are less than 18 inches (45 cm) above the floor.
- Do not smoke, strike a match, or cause a spark near the vehicle while testing and keep all sparks, heated items and open flames away from the battery and fuel / fuel vapors as they are highly flammable.
- Keep a dry chemical fire extinguisher suitable for gasoline, chemical and electrical fires in work area.
- Always be aware of rotating parts that move at high speed when an engine is running and keep a safe distance from these parts as well as other potentially moving objects to avoid serious injury.
- Do not touch engine components that get very hot when an engine is running to avoid severe burns.
- Block drive wheels before testing with engine running. Put the transmission in park (for automatic transmission) or neutral (for manual transmission). And never leave a running engine unattended.
- Do not wear jewelry or loose fitting clothing when working on engine.

# Table of Contents

<b>ONE-YEAR LIMITED WARRANTY</b> .....	<b>2</b>
<b>SAFETY INFORMATION</b> .....	<b>4</b>
<b>1 USING THIS MANUAL</b> .....	<b>7</b>
1.1 BOLD TEXT.....	7
1.2 SYMBOLS AND ICONS .....	7
1.2.1 Solid Spot.....	7
1.2.2 Arrow Icon.....	7
1.2.3 Note and Important Message .....	7
<b>2 INTRODUCTIONS</b> .....	<b>8</b>
2.1 SCANNER DESCRIPTIONS .....	8
2.2 ACCESSORY DESCRIPTIONS .....	9
2.3 TECHNICAL SPECIFICATIONS .....	9
<b>3 GETTING STARTED</b> .....	<b>9</b>
3.1 PROVIDING POWER TO SCANNER .....	9
3.1.1 Connecting to Vehicle Power.....	9
3.1.2 Connecting to Personal Computer with USB Cable.....	10
3.2 APPLICATION OVERVIEW.....	10
3.3 INPUT DIALOG BOX .....	10
<b>4 DIAGNOSTIC OPERATIONS</b> .....	<b>11</b>
4.1 DIAGNOSIS .....	12
4.1.1 Vehicle Identification.....	12
4.1.1.1 Automatic VIN Acquisition .....	12
4.1.1.2 Manual VIN Entry .....	13
4.1.1.3 Manual Vehicle Selection .....	14
4.1.1.4 Vehicle Record .....	14
4.1.2 System Selection .....	16
4.1.2.1 Auto Scan.....	16
4.1.2.2 Control Unit .....	18
4.1.3 Diagnostic Function Selection.....	19
4.1.3.1 Read Codes .....	19
4.1.3.2 Freeze Frame Data .....	20
4.1.3.3 Erase Codes.....	21
4.1.3.4 ECU Information.....	22
4.1.3.5 Live Data .....	23
4.1.3.6 Custom Data List.....	24
<b>5 BI-DIRECTIONAL TEST OPERATION</b> .....	<b>26</b>
5.1 ACTIVE TESTS .....	26
5.2 ADAPTATION .....	27
5.4 CODING AND PROGRAMMING.....	28
<b>6 SERVICE AND MAINTENANCE OPERATIONS</b> .....	<b>28</b>

6.1 OIL SERVICE RESET .....	28
6.1.1 Oil Reset With One Button.....	29
6.1.2 Manual Reset.....	30
6.1.3 Auto Reset.....	31
6.2 ELECTRONIC PARKING BRAKE.....	31
6.3 TIRE PRESSURE MONITORING SYSTEM (TPMS) PROGRAMMING.....	32
6.4 ABS/AIRBAG SERVICES .....	32
6.5 STEERING ANGLE SENSOR (SAS) CALIBRATION.....	32
6.6 DIESEL PARTICULATE FILTER (DPF) REGENERATION .....	32
<b>7 OBDII/EOBD OPERATIONS.....</b>	<b>33</b>
7.1 SYSTEM STATUS .....	33
7.2 READ CODES .....	34
7.3 ERASE CODES.....	35
7.4 LIVE DATA.....	36
7.4.1 Complete Data List .....	36
7.4.2 Custom Data List .....	38
7.5 FREEZE FRAME .....	40
7.6 READ I/M READINESS STATUS DATA .....	40
7.7 O2 MONITOR TEST .....	42
7.8 ON-BOARD MONITOR TEST.....	44
7.9 COMPONENT TEST.....	46
7.10 REQUEST VEHICLE INFORMATION.....	47
7.11 MODULES PRESENT.....	48
7.12 DTC LOOKUP.....	49
<b>8 PLAYBACK DATA.....</b>	<b>50</b>
<b>9 SYSTEM SETUP .....</b>	<b>52</b>
9.1 SELECT LANGUAGE .....	52
9.2 CHANGE UNITS.....	52
9.3 CONFIGURE BEEPER.....	53
9.4 TEST KEYPAD.....	54
9.5 LCD KEYPAD .....	55
9.6 TOOL INFORMATION.....	55
9.7 CONFIGURE SHORTCUT KEYS .....	56
<b>10 UPDATE .....</b>	<b>57</b>
10.1 CREATE A FOXWELL ID .....	57
10.1.1 Register through Website .....	57
10.1.2 Register with FoxScanner.....	62
10.2 REGISTER YOUR SCANNER .....	65
10.2.1 Register Through Website .....	65
10.2.2 Register With FoxScanner.....	67
10.3 UPDATE THE SCANNER .....	68
10.4 PRINT TEST RESULTS .....	74

# 1 Using This Manual

We provide tool usage instructions in this manual. Below is the conventions we used in the manual.

## 1.1 Bold Text

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

Example:

Press the **ENTER** button to select.

## 1.2 Symbols and Icons

### 1.2.1 Solid Spot

Operation tips and lists that apply to specific tool are introduced by a solid spot ●.

Example:

When System Setup is selected, a menu that lists all available options displays. Menu options include:

- Languages
- Unit
- Beep
- Keypad Test
- LCD Test
- About
- Shortcuts

### 1.2.2 Arrow Icon

▶ An arrow icon indicates a procedure.

Example:

▶ To change menu language:

1. Scroll with the arrow keys to highlight **Language** on the menu.
2. Press the **ENTER** button to select.

### 1.2.3 Note and Important Message

#### Note

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

Example:

---

#### NOTE

Test results do not necessarily indicate a faulty component or system.

---

#### Important

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

Example:

---

#### IMPORTANT

Do not soak keypad as water might find its way into the scanner.

---

## 2 Introductions

Foxwell NT510 Multi-system scanner is a dealer level diagnostic tool for any selected vehicles sold worldwide. It is a unique tool that delivers OE-level diagnosis for all the electronic systems of different car brands. What's more important is that it supports the most commonly required service features such as Oil Light/Service reset, brake deactivation, transmission adaptations, and so on.

Available applications are BMW, Mercedes Benz, Fiat, PSA, Chrysler, Ford, GM, Honda, Nissan, Toyota and more. And the functions may vary by year and model.

With the tool properly connected to the vehicle's data link connector (DLC), you can use the scanner to read diagnostic trouble codes and view "live" data readings from all electronic vehicle control systems, such as engine, ABS, and instrument cluster. You can also save "recordings" of the data readings, print information, and perform special function tests such as coding, basic setting and adaptation. In addition, you can use it for oil service interval reset and EPB system maintenance.

### 2.1 Scanner Descriptions

This section illustrates external features, ports and connectors of the scanner.



Figure 2-1 Front View

**A/J Diagnostic Port** - provides connection between vehicle and the scanner.

**B LCD Display** - shows menus, test results and operation tips.

**C Function Keys / Shortcut keys** - three keys that correspond with "buttons" on some screens for executing special commands or provide quick access to most frequently used applications or functions.

**D Direction Keys** - select an option or scroll through a screen of data or text.

**E BACK Key** - exits a screen and generally returns to previous screen.

**G ENTER Key** - executes a selected option and generally goes to the next screen.

**F HELP Key** - displays helpful information.

**H Power Switch** - turns on/off the scanner and press and hold for 5 seconds for emergency reboots.



I **USB Port** - provides a USB power connection between the Scan Tool and PC or laptop.

K **TF Card Port** - holds the TF memory card for data backup and software update.

---

**IMPORTANT**

Do not use solvents such as alcohol to clean keypad or display. Use a mild nonabrasive detergent and a soft cotton cloth.

---

## 2.2 Accessory Descriptions

This section lists the accessories that go with the scanner. If you find any of the following items missing from your package, contact your local dealer for assistance.

1 **User's Guide** - provides operation instructions for the usage of the scanner.

2 **USB Cable** - provides connection between the scanner and a computer to check data.

3 **TF Memory Card** - contains the scanner's operating software and applications.

---

**IMPORTANT**

Do not remove the memory card unless performing updates to the card.

---

4 **Memory Card Reader**- connects the TF card to computer to update software and print test results.

5 **Nylon Carry Pouch** - stores the scanner and its accessories.

## 2.3 Technical Specifications

**Display:** Backlit, 240\*320 TFT color display

**Working Temperature:** 0 to 60 °C (32 to 140 °F)

**Storage Temperature:** -20 to 70 °C (-4 to 158 °F)

**Power Supply:** 8-18V vehicle power and 3.3V USB power

**Dimensions (L\*W\*H):** 200\*100\*38mm

**Weight:** 0.6 Kg

## 3 Getting Started

This section describes how to provide power to the scanner, provides brief introductions of applications loaded on the scanner and display screen layout and illustrates how to input text and numbers with the scan tool.

### 3.1 Providing Power to Scanner

Before using the scanner, make sure to provide power to the scanner.

The unit operates on any of the following sources:

- 12-volt vehicle power
- USB connection to personal computer.

#### 3.1.1 Connecting to Vehicle Power

The scanner normally powers on whenever it is connected to the data link connector (DLC).



To connect to vehicle power:

1. Locate the data link connector (DLC). The DLC is generally located under the dash on the driver side of the vehicle.
2. Attached the Diagnostic cable to the scanner and tighten the captive screws to ensure good connection.
3. Connect a correct adapter to the data cable according to the vehicle being serviced and plug it into the vehicle DLC.
4. Switch the ignition key to the ON position.
5. The scanner automatically boots up.

---

**IMPORTANT**

Never try to provide power for the scan tool from USB connection when the scan tool is communicating with a vehicle.

---

### 3.1.2 Connecting to Personal Computer with USB Cable

The scan tool also receives power through the USB port when it is connected to a PC for updating software and transferring saved files.



To connect to PC:

1. Insert the small end of the USB cable to the USB port at the right side of the scanner and the large end to a computer.
2. Press the power switch of the scan tool to power it on.

## 3.2 Application Overview

When the scan tool boots up, the Home screen opens. This screen shows all applications loaded on the unit. The available vehicle applications may vary depending on software configuration.

Take a GM customized scanner for example, following applications are preloaded into the scanner:

- **OBDII/EOBD** - leads to OBDII screens for all 9 generic OBD system tests.
- **GM** - leads to screens for diagnostic trouble code information, live datastream, ECU information, active test, special functions, oil service and EPB maintenance applications on vehicles sold worldwide.
- **Setup** - leads to screens for adjusting default settings to meet your own preference and view information about the scanner.
- **Playback** - leads to screens for access to saved data files.

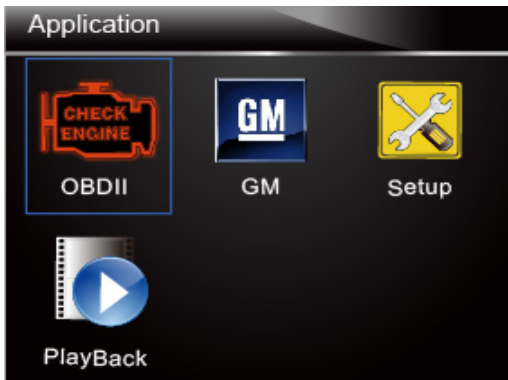


Figure 3-1 Sample Home Screen

## 3.3 Input Dialog Box

This section illustrates how to use the scan tool to input letters and numbers, such as VIN number, channel number, test values and DTC number. Typically, you may be required to input letters or numbers when you are doing any of the following operations.

- VIN entry
- input channel number
- set adaptation value
- enter block number
- enter login code
- key matching
- look up DTCs

The scan tool provides 4 different types of keyboard to meet your specific needs. Depending on the needs of text entry, it automatically shows the most suitable keypad.

- classic QWERTY keyboard for input of texts that contain both letters and numbers
- numeric keyboard for input of numbers
- alphabet keyboard for input of letters
- hexadecimal keyboard for special functions, such as key matching, UDS coding



To input text with the scan tool:

1. When you are requested to input text, press the function key **Keyboard**.

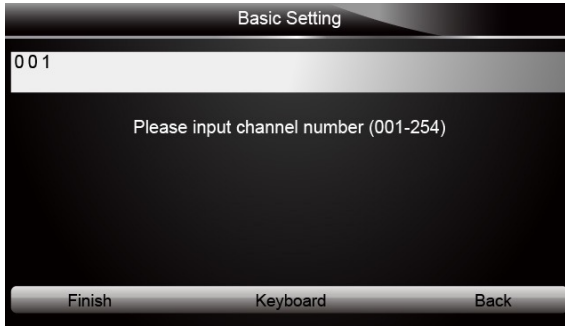


Figure 3-2 Sample Input Text Screen

2. Scroll with the arrow keys to highlight your desired letter or number and press the **ENTER** key to confirm.

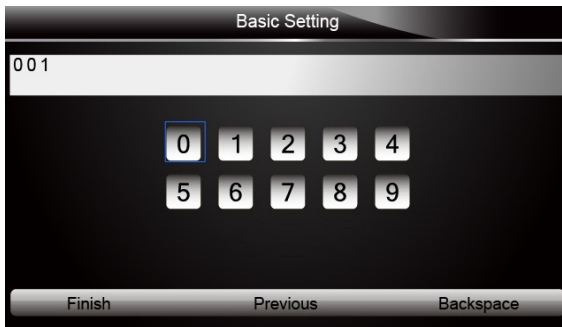


Figure 3-3 Sample Numeric Keyboard Screen

3. To delete a letter or number, use the function key **Previous** to move the cursor to it and then press the **Backspace** button.
4. When finished the entry, press **Finish** key to continue.

## 4 Diagnostic Operations

This section illustrates how to use the scanner to perform tests and maintenance on a specific vehicle, such as identifying a vehicle, and selecting a system for testing.

When the vehicle application is selected, a menu with available service options displays. Menu options typically include:

- System
- Maintenance

## 4.1 Diagnosis

This section illustrates how to use the scanner to read and clear diagnostic trouble codes, and view “live” data readings and ECU information on controllers installed on vehicles and also save “recordings” of the data readings.

### 4.1.1 Vehicle Identification

The vehicle identification information presented is provided by the ECM of the vehicle being tested. Therefore, certain attributes of the test vehicle must be entered into the scan tool to ensure the data displays correctly. The vehicle identification sequence is menu driven, you simply follow the screen prompts and make a series of choices. Each selection you make advances you to the next screen. A Back button in the upper left corner of the screen returns you to the previous screen. Exact procedures may vary somewhat by vehicle.

It typically identifies a vehicle by any of the following means:

- Automatic VIN acquisition
- Manual VIN entry
- Manual vehicle selection
- Vehicle data recorder

---

#### NOTE

Not all identification options listed above are applicable to all vehicles. Available options may vary by vehicle manufacturer.

---

#### 4.1.1.1 Automatic VIN Acquisition

Automatic VIN Acquisition allows to identify a vehicle by automatically requesting the vehicle identification number (VIN).



To identify a vehicle automatic VIN acquisition:

1. Scroll with the arrow keys to highlight the vehicle application from the main menu and press the **ENTER** key to start. If you have the application assigned to one of the function keys at the bottom of the screen, you can alternatively press the function key to start the application.



Figure 4-1 Sample Application Menu

2. Select **VIN Code Automatic Acquisition** from the menu, and press the **ENTER** key.

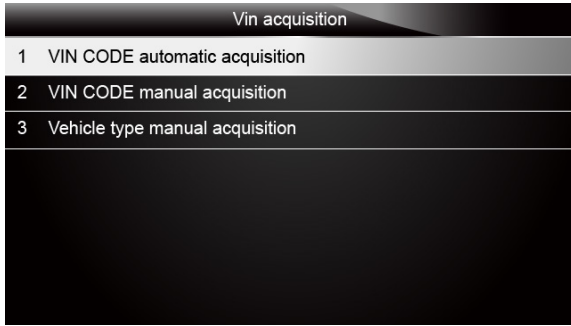


Figure 4-2 Sample Vin Acquisition Screen

3. The scan tool starts to communicate with the vehicle and read the Vehicle Specification or VIN Code automatically.

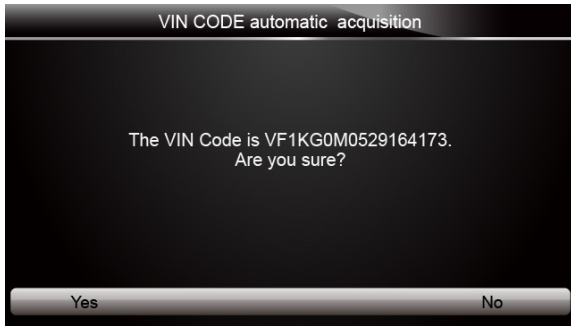


Figure 4-3 Sample VIN Automatic Acquisition

4. Answer **YES** if the Vehicle Specification or VIN code is correct and a menu of controller selection displays. Answer **NO** if it is incorrect, and you are required to enter the correct VIN number manually.

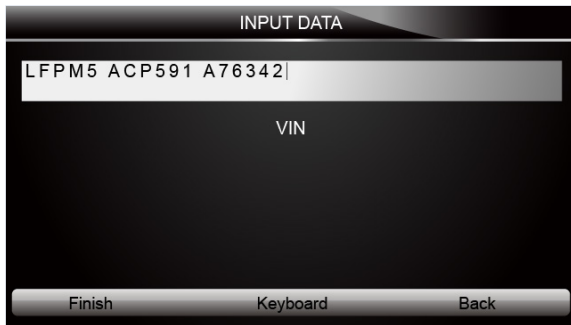


Figure 4-4 Sample manual VIN entry screen

#### 4.1.1.2 Manual VIN Entry

Manual VIN Entry identifies a vehicle by manually inputting a 17-digit VIN code.



To identify a vehicle by manual VIN entry:

1. Refer to Step 1-3 of 4.1.1 Automatic VIN Acquisition.
2. Select an appropriate option from the menu. A virtual keyboard opens for VIN entry.



Figure 4-5 Sample Manual VIN Entry with Keyboard

3. Input a valid VIN code and use the function key **Finish** to confirm. The scan tool starts to identify the vehicle.

#### 4.1.1.3 Manual Vehicle Selection

Manual Vehicle Selection identifies a vehicle by making several selections according to certain VIN characters, such as model year, and engine type.

- ▶ To identify a vehicle by manual vehicle selection:
  1. Refer to Step 1-3 of 4.1.1 Automatic VIN Acquisition.
  2. On each screen that appears, select the correct option and then press the **ENTER** key. Do this until the complete vehicle information is entered and the menu of controller selection displays.



Figure 4-6 Sample Manual Vehicle Selection Screen

#### 4.1.1.4 Vehicle Record

The multi-system scan tool is able to save the installed control units on a tested vehicle by creating a vehicle record. It provides quick identification of previously tested vehicle(s), and installed control modules.

#### **NOTE**

The Vehicle Record option will not show if no record of previously identified vehicle is created.

- ▶ To create a vehicle record:
  1. Identify the vehicle by any of the means above, and run an automatic system test by selecting Auto Scan.

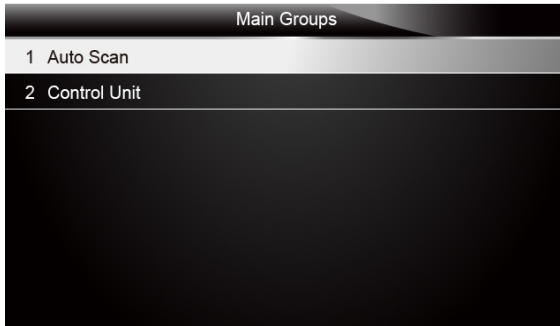


Figure 4-7 Sample Select System Scan Screen

- When the test finished, press the function key **Save** on the screen, and a screen with a QWERTY keyboard displays.



Figure 4-8 Sample Save Vehicle Record Screen

- Enter a unique name for this vehicle and save it, and you will see this new vehicle in Vehicle Record menu.

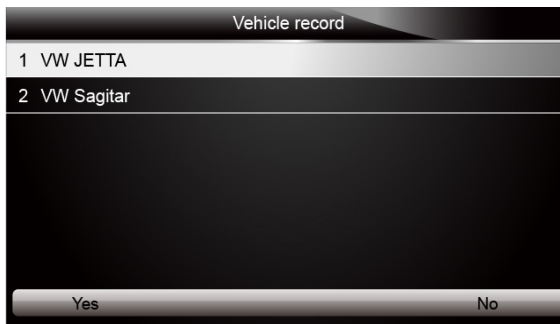


Figure4-9 Sample Vehicle Record Screen

- ▶ To identify a previously tested vehicle:
  - Select **Vehicle record** and press the **ENTER** key to start.

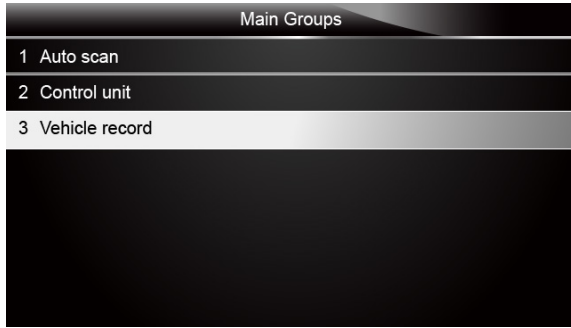


Figure 4-10 Sample Tested Vehicle Identification Screen

2. Select a vehicle you wish to test and press the **Enter** key.

## 4.1.2 System Selection

When you have completed the identification of a vehicle, a menu for selecting system to test displays. Menu options typically include:

- Auto Scan
- Control Unit

### 4.1.2.1 Auto Scan

Auto Scan performs an automatic system test to determine which control modules are installed on the vehicle and obtain diagnostic trouble codes (DTCs) overview. Depending on the number of control modules, it may take 10 minutes or longer to complete the test. However, if you have used the Models (Guide Function) to identify the vehicle, it takes much shorter time to determine the installed controllers.

- ▶ To perform an automatic system scan:
1. Scroll with the arrow keys to highlight **Auto Scan** from the menu and press **ENTER** to start.

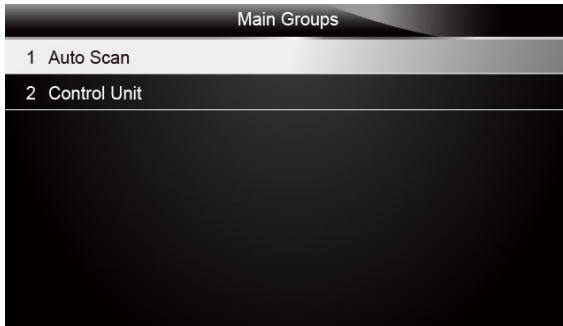


Figure4-11 Sample Selected System Scan Screen

2. To pause the scan, press the function key corresponding with **Pause** on the screen.



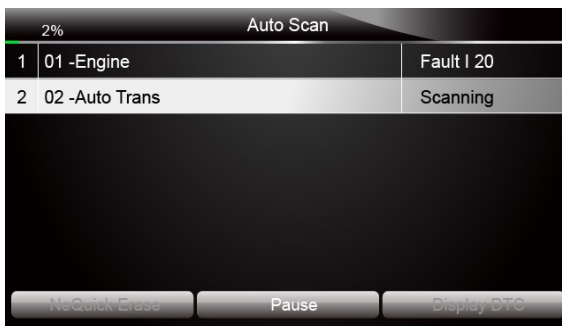


Figure 4-12 Sample Automatic System Scan Screen

- At the end of successful automatic controller scan, a menu with a list of installed controllers together with their DTC overview displays.

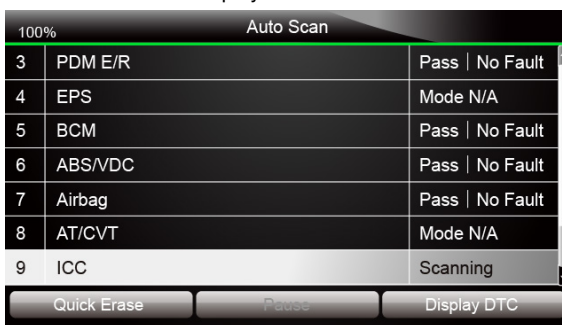


Figure 4-13 Sample Auto Scan Screen

- If there is diagnostic trouble code(s) detected in a control unit, press the function key corresponding with **Display DTC** on the screen to view details of code information, and press the function key **Quick Erase** to clear them.

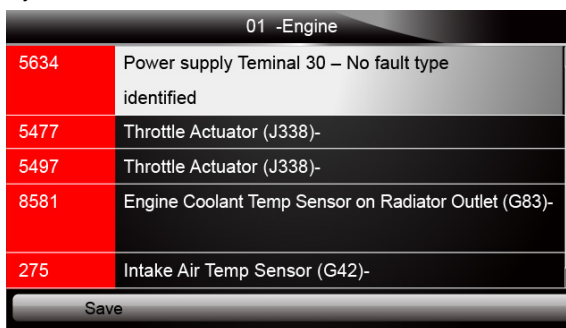


Figure 4-14 Sample Display DTC Screen

- Select the system you would like to test, and press the **ENTER** key. When the scanner has established connection with the vehicle, the Function Menu displays.

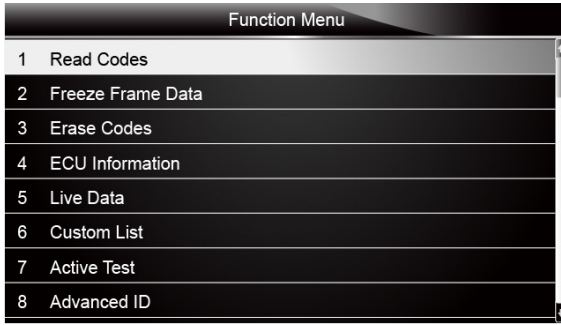


Figure 4-15 Function Menu screen

#### 4.1.2.2 Control Unit

Control Unit screen displays all controllers available on the vehicles. The controllers listed on the menu do not mean that they are installed on the vehicle.

- ▶ To select a system for testing:
  1. Scroll with the arrow keys to highlight **Control Unit** from the menu and press the **ENTER** key. A controller menu displays.

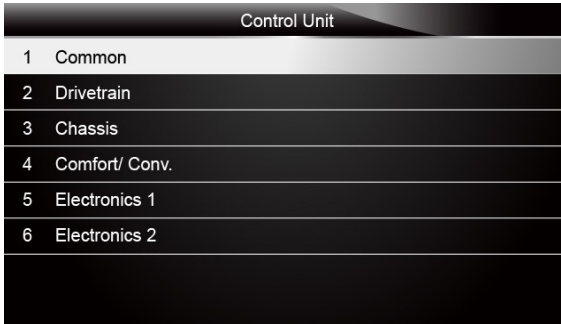


Figure 4-16 Sample Control Unit Menu Screen

2. Select the system you would like to test. When the scanner has established connection with the vehicle, the Function Menu displays.

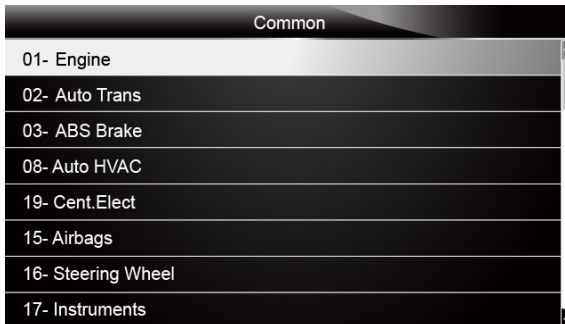


Figure 4-17 Sample Common Menu Screen

## 4.1.3 Diagnostic Function Selection

After a system is selected and the scanner establishes communication with the vehicle, the Function Menu displays. The menu options may include:

- Read Codes
- Freeze Frame Data
- Erase Codes
- ECU information
- Live Data
- Custom Data
- Active test
- Advance ID
- Readiness test

---

### NOTE

Not all function options listed above are applicable to all vehicles. Available options may vary by the year, model, and make of the test vehicle. A "The selected mode is not supported!" message displays if the option is not applicable to the vehicle under test.

---

#### 4.1.3.1 Read Codes

Read Codes menu lets you read trouble codes found in the control unit.

Typical menu options include:

- Present/Permanent/Current Codes
- Pending Codes
- History Codes
- Code History
- Self Diagnostic


Present/Permanent/Current codes stored in a control module are used to help identify the cause of a trouble or troubles with a vehicle. These codes have occurred a specific number of times and indicate a problem that requires repair.

Pending codes are also referred to as maturing codes that indicate intermittent faults. If the fault does not occur within a certain number of drive cycles (depending on vehicle), the code clears from memory. If a fault occurs a specific number of times, the code matures into a DTC and the MIL illuminates or blinks.

History codes are also referred to as past codes that indicate intermittent DTCs that are not currently active.

Code history is number of engine starts since the DTC(s) were first detected (to see if they are current or intermittent).

Self-diagnostic lets you manually activate system tests that check for DTCs. Usually it includes a KOEO (Key-on, engine-off) test and a KOER (key-on, engine-running) test.

 To read codes from a vehicle:

1. Scroll with the arrow keys to highlight **Read Codes** from Function Menu and press the **ENTER** key. A code list including code number and its description displays.

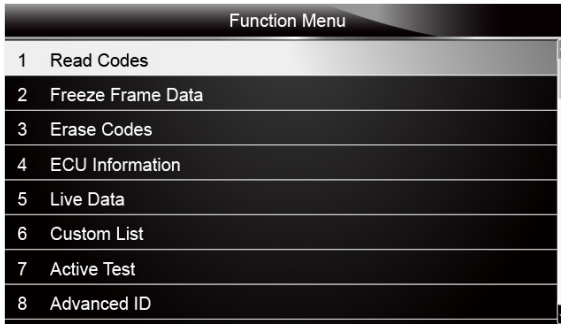


Figure 4-18 Sample Function Menu Screen

- Use the up and down arrow keys to scroll through data to select lines, and left and right arrow keys to scroll back and forth through different screens of data.

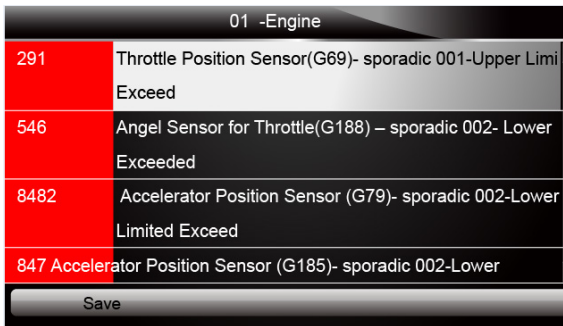


Figure 4-19 Sample Code Screen

- Press function key **Save** to store DTC information. Or use the **BACK** key to exit.

#### 4.1.3.2 Freeze Frame Data

Freeze Frame Data menu displays freeze frame data, a snapshot of critical vehicle operating conditions automatically recorded by the on-board computer at the time of the DTC set. It is a good function to help determine what caused the fault.



To view freeze frame data:

- Select **Freeze Data** from the Function Menu. Details of freeze frame data displays.

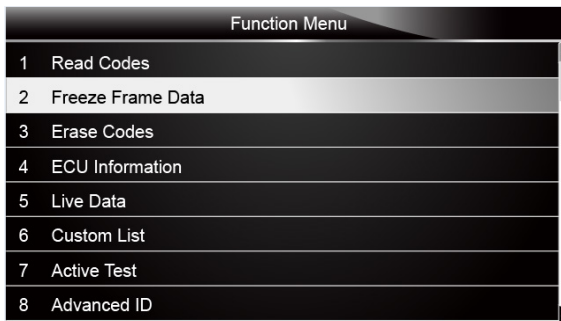


Figure 4-20 Sample Function Menu Screen

- Use the arrow keys to scroll back and forth through different screens of data.

Freeze Frame Data	
00291	
Fault Status	01100001
Fault Priority	0
Fault Frequency	1
Mileage	0km
Time Indication	0
RPM	0 / min
Save Back	

Figure 4-21 Freeze Data screen

3. Press function key **Save** to store freeze frame information. Or use the **BACK** key to exit.

#### 4.1.3.3 Erase Codes

Erase Codes menu lets you to clear all current and stored DTCs from a selected control module. Also it erases all temporary ECU information, including freeze frame. So make sure that the selected system are completely checked and serviced by technicians and no vital information will be lost before clearing codes.

#### NOTE

- To clear codes, make sure that the ignition key is switched to ON with the engine off.
- Erase Codes does not fix the problem that caused the fault! DTCs should only be erased after correcting the condition(s) that caused them.

▶ To clear codes:

1. Scroll with the arrow keys to highlight **Erase Codes** from Function Menu and press the **ENTER** key.

Function Menu	
1	Read Codes
2	Freeze Frame Data
3	Erase Codes
4	ECU Information
5	Live Data
6	Custom List
7	Active Test
8	Advanced ID

Figure 4-22 Sample Function Menu Screen

2. Follow the on-screen instructions and answer questions about the vehicle being tested to complete the procedure.

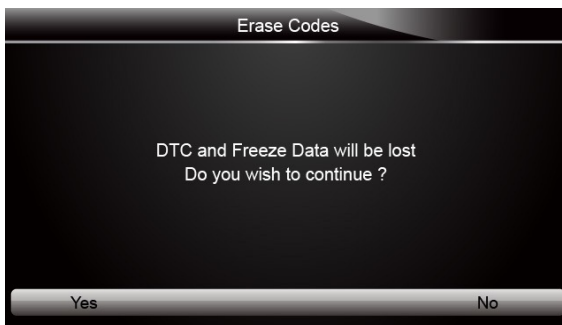


Figure 4-23 Sample Erase Codes Screen

3. Check the codes again. If any codes remain, repeat the Erase Codes steps.

#### 4.1.3.4 ECU Information

ECU Information screen displays the identification data of the control module under test, such as the control module identification string, the control module coding, and Work Shop Code.



To read ECU information:

1. Select **ECU Information** from the menu and press the **ENTER** key.

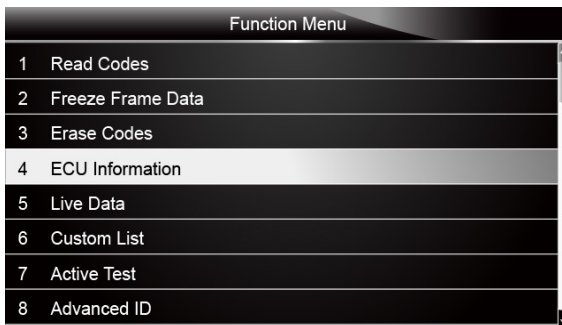


Figure 4-24 Sample Function Menu Screen

2. A screen with detailed information of the selected control module displays.

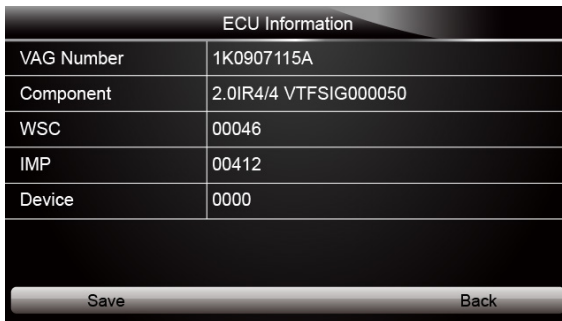


Figure 4-25 Sample ECU Information Screen

3. Press function key **Save** to store ECU information. Or use the **BACK** key to exit.

### 4.1.3.5 Live Data

Live Data menu lets you view and record real time PID data from a selected vehicle electronic control module.

- ▶ To view live PID data:
1. Scroll with the arrow keys to highlight **Live Data** from the menu and press the **ENTER** key.

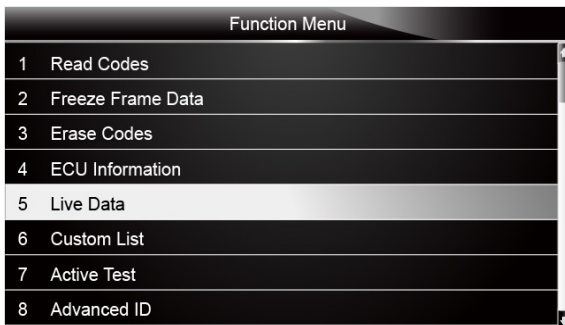


Figure 4-26 Sample Function Menu Screen

2. Enter a valid channel number and press the **ENTER** key. Answer **Yes** to view live data of the channel. Or answer **No** to quit.



Figure 4-27 Sample Input Channel No. Screen

3. Use the function key **Next CH** or **Pre. CH** to scroll through all 255 possible channels.

CH NO.1 Basic Functions		
Engine Speed	0	/min
Coolant, Temperature	14.00	°C
Lambda, Regulator	0.0	%
Basic Setting, Requirements	00110010	

Pre. CH Next CH Save

Figure 4-28 Sample Channel Information Screen

4. To record the data to memory of the scanner, use the function key **SAVE**, and press "**Stop Saving**" to stop recording.
5. Press the **BACK** key to return to Function Menu.

### 4.1.3.6 Custom Data List

Custom Data List menu lets you to minimize the number of PIDs on the data list and focus on any suspicious or symptom-specific data parameters.

- ▶ To create a custom data list:
1. Select **Custom List** from the menu and press the **ENTER** key.

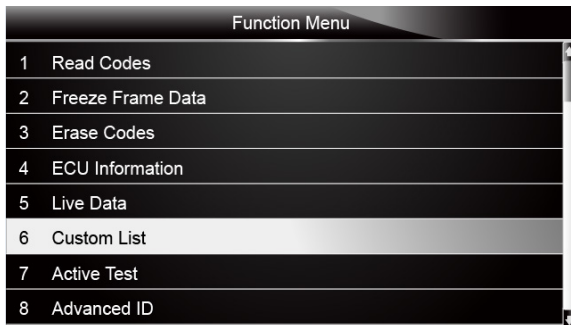


Figure 4-29 Sample Function Menu Screen

2. The custom datastream selection screen displays. Scroll with the up and down arrow keys to highlight a line, press the **ENTER** key and then repeat the action to make more selections.

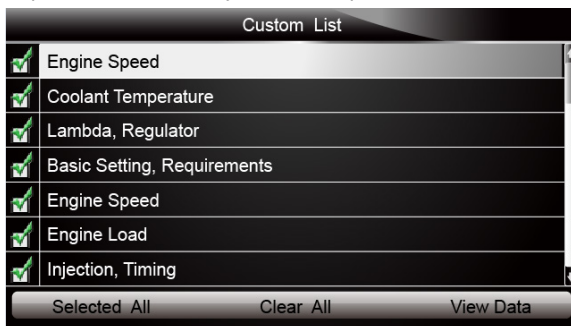


Figure 4-30 Sample Custom List Selection Screen

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#### NOTE

To deselect an item, select it again and then press the **ENTER** key. Alternatively, use the function keys **SELECT ALL** and **CLEAR ALL** to select or deselect all items at once.

---

3. When finished selection, use the function key **VIEW DATA** to display selected items.

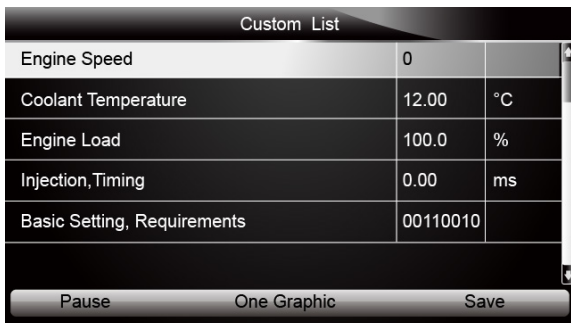




Figure 4-31 Sample Datastream Screen

4. Scroll with the up and down arrow keys to highlight a line, if the **One Graphic** on the bottom is highlighted, it indicates the graphing is available for the selected line. Press the function key **One Graphic** to display the PID graph.

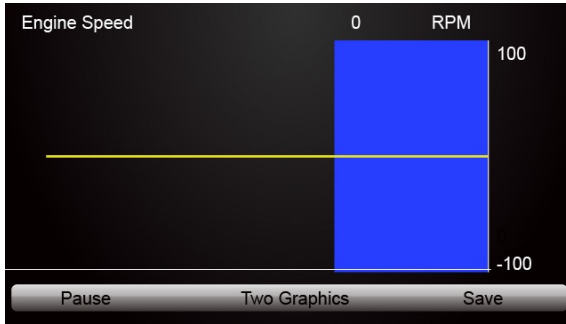


Figure 4-32 Sample PID Graph Screen

5. Press the function key **Two Graphics** to display two PID graphs in one screen.

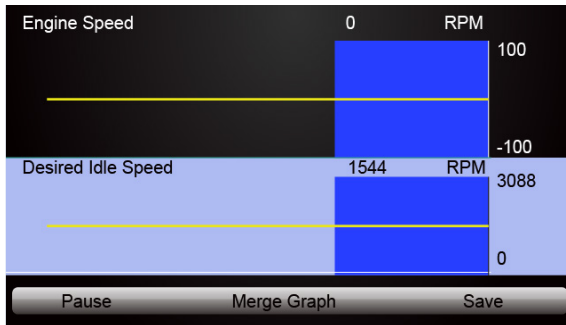


Figure 4-33 Sample Two PID Graph Screen

6. Press the function key **Merge Graph** to display two PID plots in one coordinate for easy and intuitive diagnosis.

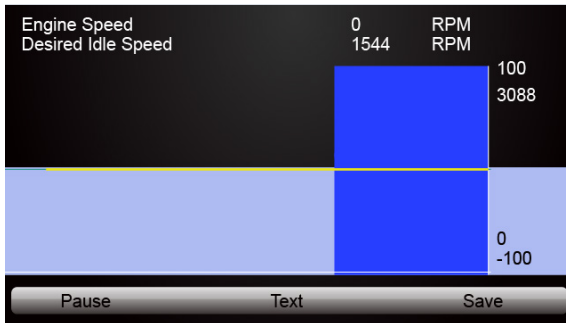


Figure 4-34 Sample Merged PID Plots Screen

7. To record the data to memory of the scanner, use the function key **SAVE**, and press **Stop Saving** to stop recording at any time.
8. Press **Text** to return to text viewing of PID data.

9. Select **Pause** to suspend collecting data from the scanner and use the **Continue** key to resume collecting data.
10. Press the **Back** key to return to the previous menu.

## 5 Bi-directional Test Operation

NT510 allows you to use the scan tool temporarily activate or control a vehicle system or component. With NT510, the check of electronic components such as switches, sensors, relays, & actuators is made a simple task. It allows you to recalibrate, adapt or configure certain components after making repairs or replacement. It gives you the ability to 'flash' a control unit with new program data. Provided that a module can be re-coded, the device allows for the coding and programming of a replacement control module or changing previously stored incorrect coding as expensive factory tools do. In addition, it lets you recode the transponder in a mechanical key or key fob. When a key for a modern vehicle is replaced, the new unit will often turn the mechanical switch but fail to initialize the system or start the vehicle. If this occurs, it is typically because the transponder inside the key has not been coded to that particular system.

### 5.1 Active Tests

Active Tests, also known as Actuator Tests, are bi-directional diagnostic tests on vehicle systems and component. The tests let you to use the scanner temporarily activate or control a vehicle system or component, and when you exit the test, the system/component returns to normal operation.

Some tests display a command to the operator. For example, if "Press Brake Pedal" displays, the operator has to press and hold the brake pedal and then continue. The sequence, number and type of tests are dictated by the control module.

On some systems, the actuator tests cannot be restarted until the ignition key is switched off for some time. Alternatively, briefly start and run the engine, shut down, turn the ignition to the run position, then re-initiate the actuator tests.

---

#### IMPORTANT

The tests activate a component, but they do not check if the component is working correctly. Make sure the components to be tested are in good condition and correctly mounted.

---

#### NOTE

Available tests depend on the control module under test and the vehicle itself.

---



To start a test:

1. Select **Active Tests** from Function Menu and press the **ENTER** key.

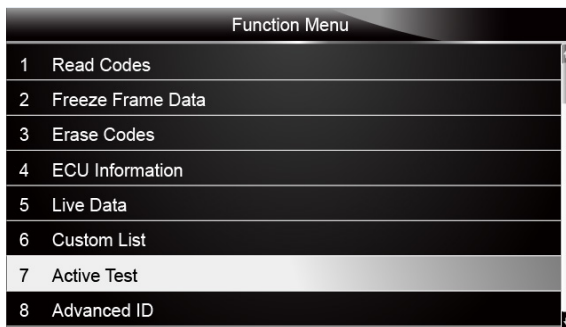


Figure 5-1 Sample Function Menu Screen

2. Select the test you would like to perform and press the **ENTER** key. Follow on-screen instructions to make proper selections and operations to complete the tests.

Selective Active Tests	
1	Turbocharger Bypass valve Control Circuit
2	boost Pressure Control Solenoid valve (N75)
3	Fuel Injector #1(N30)
4	Fuel Injector #2(N31)
5	Fuel Injector#3(N32)
6	Fuel Injector #4(N33)
7	Evap System Purge Control Valve (N80)
8	Fan1 Control Circuit

Figure 5-2 Sample Selective Screen Tests Screen

**WARNING**

- Before running any tests, always observe the safety instructions provided in this manual and the warnings provided by the vehicle manufacturer. In addition, follow any warnings and descriptions provided on the scanner screens.
- Never run the tests while the vehicle is moving.

## 5.2 Adaptation

Adaptation menu let you change adaptation values from the control module and allows you to alter certain values and/or settings in control modules that support it.

**WARNING**

You should refer to the Service Manual for your particular car before attempting to use the Adaptation function.



To set an adaptation:

1. Select **Adaptation** from Function Menu and press the **ENTER** key.

Function Menu	
9	Security Access (Login)
10	Basic Setting
11	Adaptation
12	Readiness Test
1	Read Codes
2	Freeze Frame Data
3	Erase Codes
4	ECU information

Figure 5-3 Sample Function Menu Screen

2. Follow on-screen instructions to make proper selections and operations to complete the tests.

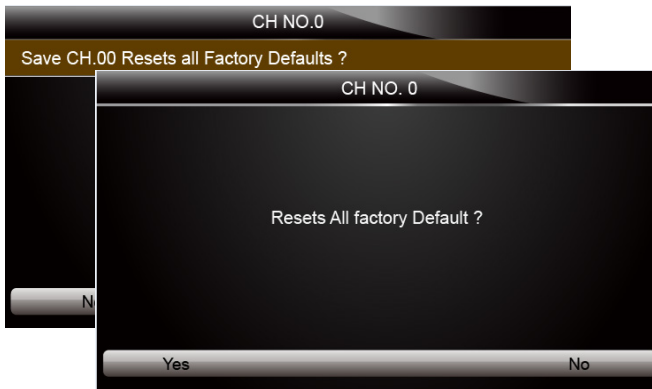


Figure 5-4 Sample Adaptation Setting Screen

3. To exit the test, press **BACK** button.

## 5.4 Coding and Programming

NT510 allows for the coding and programming of a replacement control module or changing previously stored incorrect coding.

Coding also known as Teach-in Program or Component Adaptation. It is the process of selecting and activating one program for a specific vehicle from a set of programs that the factory installed in the control module. This allows one control module to be used for different models, countries, and emission applications.

Programming is the process of taking a blank control module and then adding the correct vehicle program to memory.

## 6 Service and Maintenance Operations

This section gives brief instructions of the most commonly required service and maintenance operations. Typical service operation screens are a series of menu driven executive commands. Follow on-screen instructions to complete the operation.

Available service and maintenance options include:

- Oil Service Reset
- Electronic Parking Brake (EPB)
- TPMS Programming Service
- ABS/SRS Services
- SAS Calibration
- DPF Regeneration

### 6.1 Oil Service Reset

Oil Light Reset menu allows you to reset the service lamps on the instrument cluster. The Service Indicator System is designed to alert the driver when the vehicle is due for a service.

Oil service reset methods are determined by the vehicle being tested. Depending on the vehicle being tested, any of the following means displays:

- Oil Reset With One Button
- Manual Reset
- Auto Reset

## 6.1.1 Oil Reset With One Button

Oil Reset With One Button is applicable to GM models only. It offers quick and simple oil service reset with the click of one button.



To do Oil Reset With One Button:

1. Scroll with up and down arrow keys to highlight **Oil Reset With One Button** from the Oil Reset menu. An Information screen displays. Press the function key **OK** to continue or **Cancel** key to return to the Oil Reset menu.



Figure 6-1 Sample Oil Reset Menu Screen

2. Follow on-screen instruction and send a command to reset oil service. A screen with “Success” message displays once the lamp has been reset. Press any key to return.



Figure 6-2 Sample Oil Reset With One Button Success Screen

3. If the oil service reset failed, the following screen displays. Please follow on-screen instructions to troubleshoot it. If the problem still exists, please contact your local dealer for assistant.

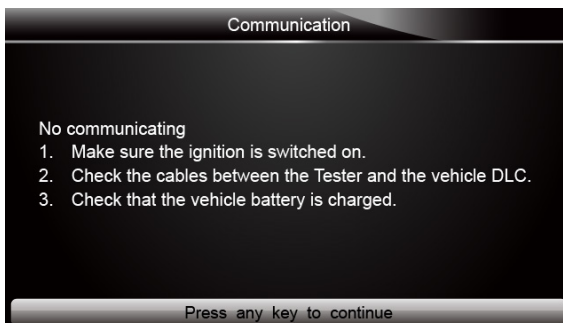


Figure 6-3 Sample Oil Reset With One Button Failed Screen

## 6.1.2 Manual Reset

Almost all Asian vehicles and most American and European vehicles have mechanical oil service indicator reset. The service tool does not have to communicate with the vehicle being tested, but guides you to complete the service manually by providing step-by-step on-screen instructions.

When Manual Reset is selected and the vehicle being tested identified, a procedure opens on the screen. Scroll with arrow keys to read the entire procedure and performing the necessary steps as directed by the on-screen instructions. The exact order of the test operation steps may vary depending on the test vehicle. Be sure to follow all on-screen instructions.

This manual reset procedure can be interrupted and aborted if the ignition key position is changed.

- ▶ To do oil reset manually:
1. Scroll with up and down arrow keys to highlight **Manual Reset** from the **Oil Reset** menu and press **ENTER** to confirm.



Figure 6-4 Sample Oil Reset Menu Screen

2. Enter vehicle information by certain VIN characters, such as model, and year to identify the vehicle being tested and press **ENTER** key to confirm.



Figure 6-5 Sample Vehicle Identification Screens

3. When the vehicle is identified, a procedure screen displays.

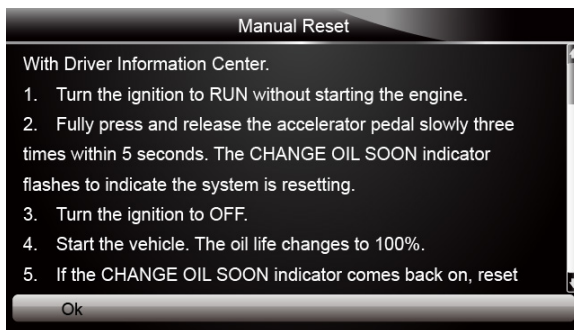


Figure 6-6 Sample Manual Reset Instructions Screen

4. Follow all on-screen instructions to perform the manual mechanical reset.
5. Press function key **OK** to return.

### 6.1.3 Auto Reset

Auto Reset is a bi-directional communication procedure directed by the service tool. The service tool displays guides for you through the process. A number of instructions that require a response to continue display, including an option to clear any stored codes once the interval has been reset. Follow the on-screen instructions.

## 6.2 Electronic Parking Brake

EPB Service menu allows you to perform the service and maintenance of brake systems, including deactivation and activation of the brake control system, bleeding brake fluid, opening and closing brake pads, and setting brakes after disc or pad replacement, on multiple brands of vehicles where electronic brake systems are fitted.

Some tests display a command to the operator. For example, if “Pressing Brake Pedal” displays, the operator has to press and hold the brake pedal and then continue. Actual tests vary by vehicle manufacturer, year, make.

Typical special test options include:

- **Deactivate/Activate SBC/EPB systems** - allows to deactivate brakes for further service or maintenance work on brake systems or activate brakes when service or maintenance work on brake systems are completed.
- **Adaptation on Audi A8** - allows to set new pad thickness of rear brakes calipers after changing brake discs & pads on Audi A8 models.
- **Replace hydraulic brake systems fluid/bleed brake system on Mercedes SBC vehicles** - allows to change brake fluid/bleed brake system.
- **Perform service reset and service position on BMW EPB vehicles** - allows to do the CBS reset and CBS correction for front brake and rear brake.
- **Perform activation/service work on Volvo PBM vehicles** - allows to perform installation check, applying parking brake, releasing parking brake, activating service mode and exiting service mode.
- **Reset memory on Toyota EPB vehicles** - allows to clear the learned memory of the EPB ECU.
- **Perform brake cable replacement and electric parking brake replacement** - allows to fit in or remove the brake cable safely, adjust brake cable's tension and calibrate the electric parking brake replacement.
- **Save and write clutch pedal programming on Renault EPB vehicles** - allows to save clutch pedal programming on Renault vehicles fitted with manual gearbox. After this

command is activated, the tool allows to "flash" the electric parking brake unit with the saved clutch data.

- **Perform control function and reset function on Opel EPB vehicles** - allows to apply/release park brake cable service, provide park brake cable service replacement procedures and calibrate the parking brake systems after brake service.
- **Sensor calibration on Honda EPB vehicles** - allows to program the current output value of each sensor into the electric parking brake unit.
- **Provides parking brake unjam procedure and perform longitudinal accelerometer calibration on Land Rover EPB vehicles** - allows to drive the electronic park brake so it is unjammed in the releasing direction and then drive it into mounting position or the latching position; also allows to perform longitudinal accelerometer calibration.

#### **WARNING**

- EPB systems must be deactivated before carrying out any maintenance/service work on the brakes such as changing of pads, discs and calipers.
- Use proper tools to avoid the risk of body injuries of mechanics and technicians and damage to the brake system.
- Make sure the vehicle is properly blocked after deactivation of the systems.

## 6.3 Tire Pressure Monitoring System (TPMS) Programming

TPMS Service menu allows you to check the tire sensor IDs from the vehicle ECU and to perform TPMS programming and reset after tires and/or TPM sensors are replaced and/or tires are rotated.

## 6.4 ABS/Airbag Services

ABS/Airbag Services menu let you use the scanner temporarily to activate or control anti-lock brake systems and air bags or components.

Typical test options include:

- **ABS Manual Control Tests**—allows to manually control the actuators in order to test ABS motors, solenoids, solenoid enable relays, EMBs, and more.
- **ABS Motor Test**—allows to manually control the ABS pump motor.
- **ABS Version Test**—displays the name of the brake system and the ABS controller version number, software ID, and sequence value.
- **Actuator Tests**—allows to manually control the actuators in order to test AYC valves, inlet valves, outlet valves, pump motors, and TRACS valves.
- **Auto-bleed Test, Automated Bleed, or Service Bleed** - removes air from the internal brake fluid chambers after servicing the brakes.

## 6.5 Steering Angle Sensor (SAS) Calibration

SAS Calibration menu let you perform calibration of the Steering Angle Sensor, which permanently stores the current steering wheel position as straight-ahead in the sensor EEPROM. On successful calibration of the sensor, its fault memory is automatically cleared.

## 6.6 Diesel Particulate Filter (DPF) Regeneration

DPF Regeneration menu let you perform the DPF cleaning to clear the blockage through continuous burning of the particulates captured in the DPF filter. When a DPF regeneration cycle is completed, the DPF light automatically goes off.



# 7 OBDII/EOBD Operations

OBD-II/EOBD menu lets you access all OBD service modes. According to ISO 9141-2, ISO 14230-4, and SAE J1850 standards, the OBD application is divided into several sub programs, called 'Service \$xx'. Below is a list of OBD diagnostic services:

- **Service \$01** - request current powertrain diagnostic data
- **Service \$02** - request powertrain freeze frame data
- **Service \$03** - request emission-related diagnostic trouble codes
- **Service \$04** - clear/reset emission-related diagnostic information
- **Service \$05** - request oxygen sensor monitoring test results
- **Service \$06** - request on-board monitoring test results for specific monitored systems
- **Service \$07** - request emission-related diagnostic trouble codes detected during current or last completed driving cycle
- **Service \$08** - request control of on-board system, test or component
- **Service \$09** - request Vehicle Information

When OBDII/EOBD application is selected from Home screen, the scanner starts to detect the communication protocol automatically. Once the connection has established, a menu that lists all of the tests available on the identified vehicle displays. Menu options typically include:

- System Status
- Read Codes
- Freeze Frame Data
- Erase Codes
- Live Data
- I/M Readiness
- O2 Sensor Test
- On-board Monitor Test
- Component Test
- Vehicle Information
- Modules Present
- Code Lookup

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## NOTE

Not all function options listed above are applicable to all vehicles. Available options may vary by the year, model, and make of the test vehicle. A "The selected mode is not supported!" message displays if the option is not applicable to the vehicle under test.

---

## 7.1 System Status

System Status option open a screen with a summary of system status of the vehicle under test.

- ▶ To view summary system status of a vehicle:
1. Scroll with the arrow keys to highlight **System Status** from Diagnostic Menu and press the **ENTER** key.

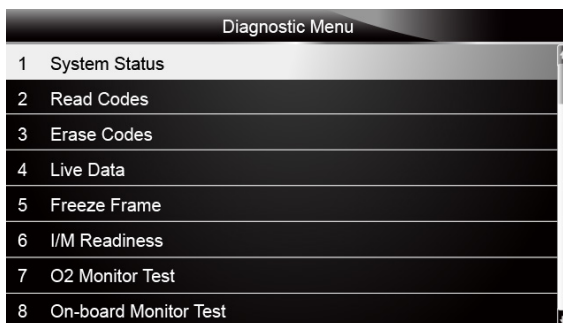


Figure 7-1 Sample Diagnostic Menu Screen

2. A screen with detailed information displays.

System Status		
MIL Status	OFF	
Code Found	0	
Monitors N/A	OFF	
Monitors OK	3	
Monitors INC	3	

Figure 7-2 Sample System Status Screen

## 7.2 Read Codes

Read Codes menu lets you read both stored codes and pending codes found in the control unit. Typical menu options include:

- Stored Codes
- Pending Codes

Diagnostic trouble codes stored in a control module are used to help identify the cause of a trouble or troubles with a vehicle. These codes have occurred a specific number of times and indicate a problem that requires repair.

Pending codes are also referred to as maturing codes that indicate intermittent faults. If the fault does not occur within a certain number of drive cycles (depending on vehicle), the code clears from memory. If a fault occurs a specific number of times, the code matures into a DTC and the MIL illuminates or blinks.

- ▶ To read codes/pending codes from a vehicle:
1. Scroll with the arrow keys to highlight **Read Codes** from Diagnostic Menu and press the **ENTER** key.

Diagnostic Menu	
1	System Status
2	Read Codes
3	Erase Codes
4	Live Data
5	Freeze Frame
6	I/M Readiness
7	O2 Monitor Test
8	On-board Monitor Test

Figure 7-3 Sample Diagnostic Menu Screen

2. Select **Stored Codes/Pending Codes** and press the **ENTER** key to confirm. A code list including code number and its description displays.

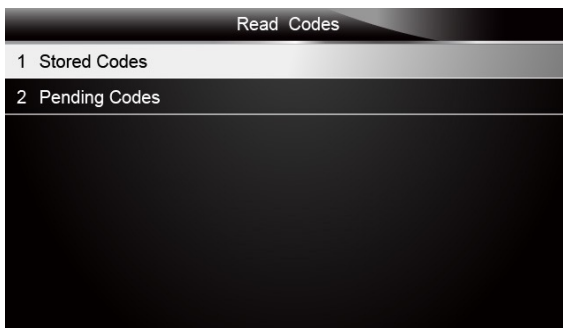


Figure 7-4 Sample Read Codes Screen

If no DTCs are present the message “No (Pending) Codes Found!” is displayed. If any manufacturer specific or enhanced codes detected, select vehicle a make before viewing DTC information.

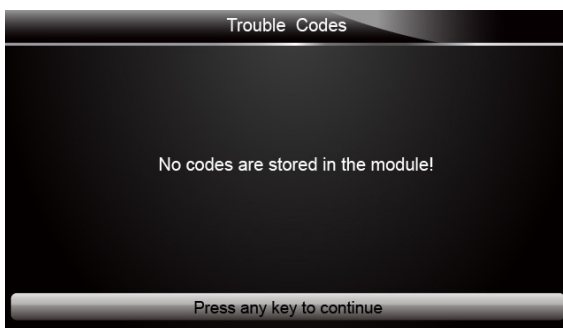


Figure 7-5 Sample No Codes Screen

- Use the up and down arrow keys to scroll through data to select lines, and left and right arrow keys to scroll back and forth through different screens of data.

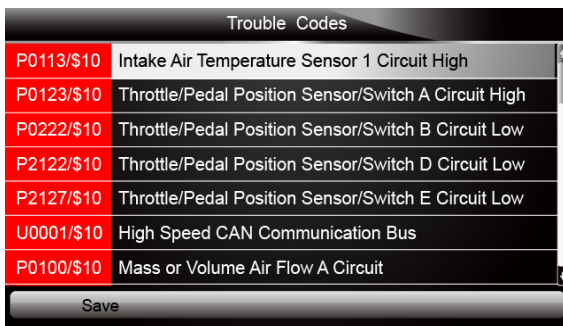


Figure 7-6 Sample Code Screen

- Press function key **Save** to store DTC information. Or use the **BACK** key to exit.

## 7.3 Erase Codes

Erase Codes menu lets you to clear all current and stored DTCs from the control module. Also it erases all temporary ECU information, including freeze frame. So make sure that the selected

system are completely checked and serviced by technicians and no vital information will be lost before clearing codes.

---

**NOTE**

- To clear codes, make sure that the ignition key is switched to ON with the engine off.
  - Erase Codes does not fix the problem that caused the fault! DTCs should only be erased after correcting the condition(s) that caused them.
- 

- ▶ To clear codes:
1. Scroll with the arrow keys to highlight **Erase Codes** from Diagnostic Menu and press the **ENTER** key.

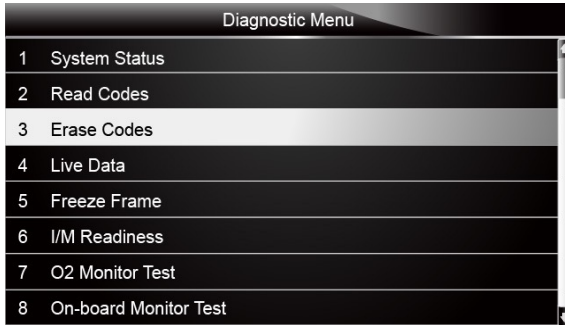


Figure 7-7 Sample Diagnostic Menu Screen

2. Follow the on-screen instructions and answer questions about the vehicle being tested to complete the procedure.

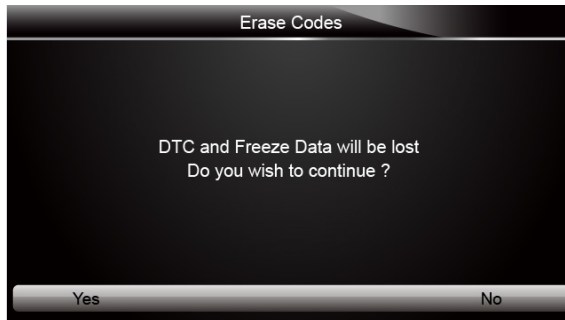


Figure 7-8 Sample Erase Codes Screen

3. Check the codes again. If any codes remain, repeat the Erase Codes steps.

## 7.4 Live Data

Live Data menu lets you view and record real time PID data from the electronic control module.

Menu options typically include:

- Complete Data List
- Custom Data List

### 7.4.1 Complete Data List

Complete Data List menu lets you view all live PID data from a selected system.

- ▶ To view all live PID data:
1. Scroll with the arrow keys to highlight **Live Data** from Diagnostic Menu and press the **ENTER** key.

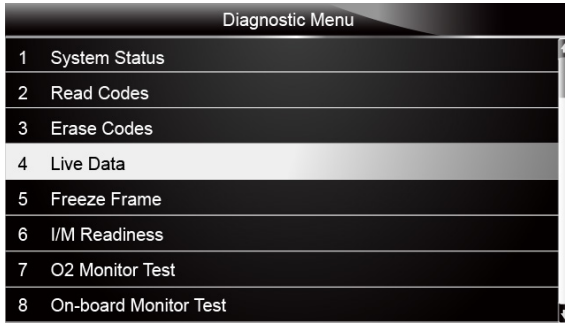


Figure 7-9 Sample Diagnostic Menu Screen

2. Select **Complete List** from the menu and press the **ENTER** key to display the datastream screen.

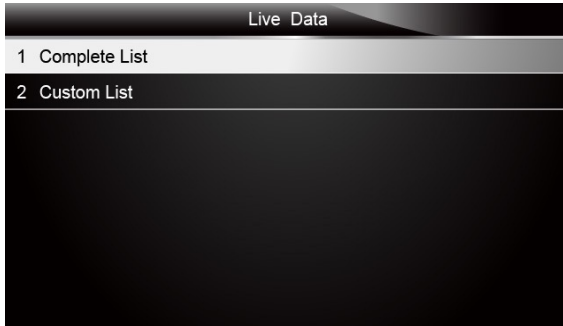


Figure 7-10 Sample Live Data Menu Screen

3. Use the up and down arrow keys to scroll through data to select lines, and left and right arrow keys to scroll back and forth through different screens of data.

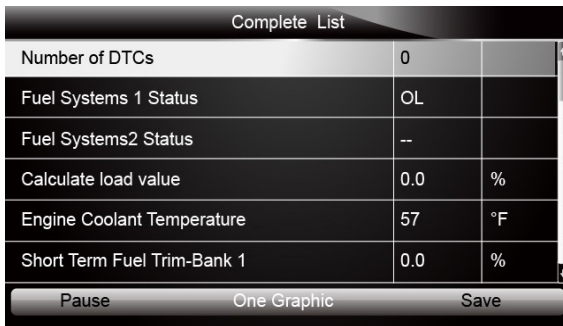


Figure 7-11 Sample Complete List Screen

4. Scroll with the up and down arrow keys to highlight a line, if the **One Graphic** on the bottom is highlighted, it indicates the graphing is available for the selected line. Press the function key **One Graphic** to display the PID graph.

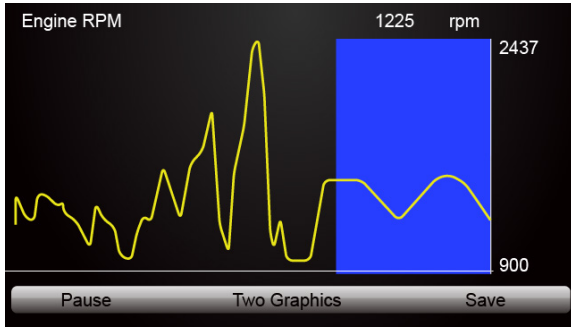


Figure 7-12 Sample PID Graph Screen

5. Press the function key **Two Graphics** to display two PID graphs in one screen.

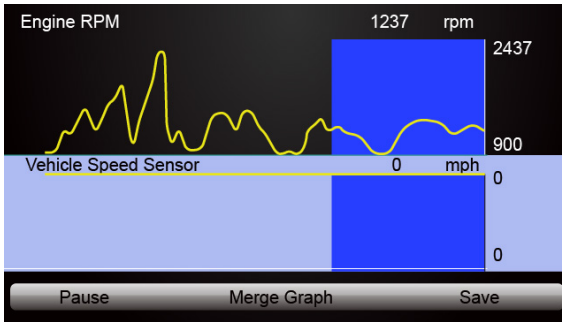


Figure 7-13 Sample Two PID Graph Screen

6. Press the function key **Merge Graph** to display two PID plots in one coordinate for easy and intuitive diagnosis.

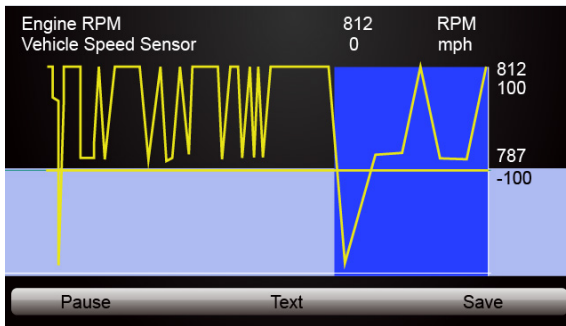


Figure 7-14 Sample Merge Graph Screen

7. To record the data to memory of the scanner, use the function key **SAVE**, and press **Stop Saving** to stop recording at any time.
8. Select **Text** to return to text viewing of PID data.
9. Press **Pause** to suspend collecting data and use the **Continue** key to resume collecting data.
10. Use the **Back** key to return to diagnostic menu.

## 7.4.2 Custom Data List

Custom Data List menu lets you to minimize the number of PIDs on the data list and focus on any suspicious or symptom-specific data parameters.

- ▶ To create a custom data list:
  1. Select **Custom List** from the menu and press the **ENTER** key.

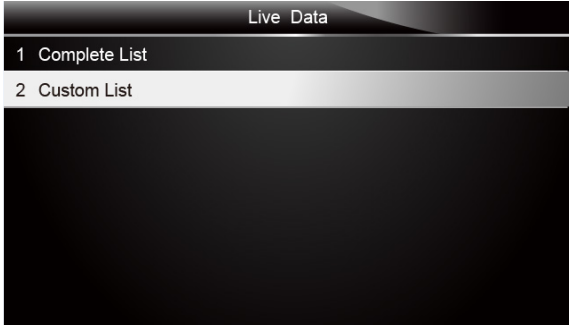


Figure 7-15 Sample Live Data Menu Screen

2. The custom datastream selection screen displays. Scroll with the up and down arrow keys to highlight a line, press the **ENTER** key and then repeat the action to make more selections.

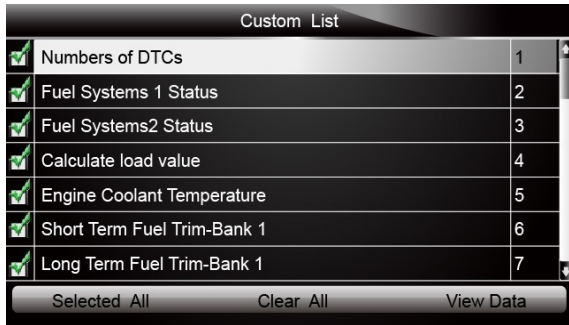


Figure 7-16 Sample Custom Datastream Selection Screen

---

**NOTE**

To deselect an item, select it again and then press the **ENTER** key. Alternatively, use the function keys **SELECT ALL** and **CLEAR ALL** to select or deselect all items at once.

---

3. When finished selection, use the function key **VIEW DATA** to display selected items.

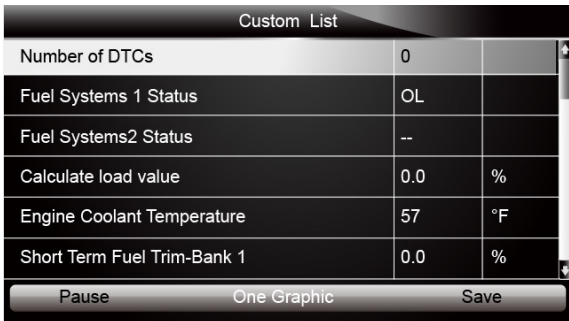


Figure 7-17 Sample Datastream Screen

## 7.5 Freeze Frame

Freeze Frame menu displays freeze frame data, a snapshot of critical vehicle operating conditions automatically recorded by the on-board computer at the time of the DTC set. It is a good function to help determine what caused the fault.



To view freeze frame data:

1. Select **Freeze Frame** from the Diagnostic Menu. Details of freeze frame data displays.

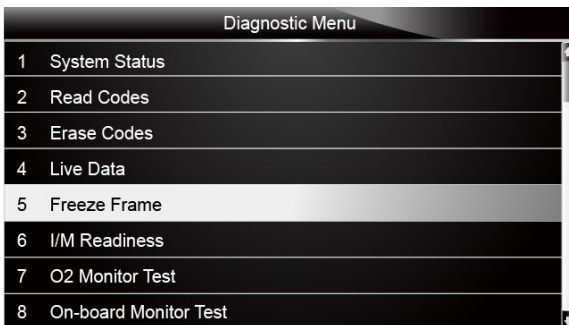


Figure 7-18 Sample Diagnostic Menu Screen

2. Use the up and down arrow keys to scroll through data to select lines, and left and right arrow keys to scroll back and forth through different screens of data. If no freeze frame detected, the message “No freeze frame data stored!” is displayed.

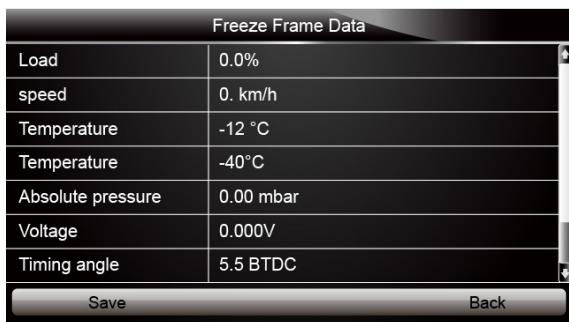


Figure 7-19 Sample Freeze Data Screen

3. Press function key **Save** to store freeze frame information. Or use the **BACK** key to exit.

## 7.6 Read I/M Readiness Status Data

I/M Readiness option allows to view a snapshot of the operations for the emission system on OBDII/EOBD vehicles.

I/M Readiness is a useful function used to check if all monitors are OK or N/A. The vehicle's computer performs tests on the emission system during normal driving conditions. After a specific amount of drive time (each monitor has specific driving conditions and time required), the computer's monitors decide if the vehicles emission system is working correctly.

When the monitor's status is:

- OK - vehicle was driven enough to complete the monitor.
- INC (Incomplete) - vehicle was not driven enough to complete the monitor.
- N/A (Not Applicable) - vehicle does not support that monitor.

There are two types of I/M Readiness tests:



- Since DTCs Cleared - shows status of the monitors since the DTCs were last cleared.
- This Drive Cycle - shows status of monitors since the start of the current drive cycle.


Below is a list of abbreviations and names of OBD II monitors supported by the scanner.

No.	Abbreviation	Name
1	Misfire Monitor	Misfire Monitor
2	Fuel System Mon	Fuel System Monitor
3	Comp. Component	Comprehensive Components Monitor
4	Catalyst Mon	Catalyst Monitor
5	Htd Catalyst	Heated Catalyst Monitor
6	Evap System Mon	Evaporative System Monitor
7	Sec Air System	Secondary Air System Monitor
8	A/C Refrig Mon	Air Conditioning Refrigerant Monitor
9	Oxygen Sens Mon	Oxygen Sensor Monitor
10	Oxygen Sens Htr	Oxygen Sensor Heater Monitor
11	EGR System Mon	Exhaust Gas Recirculation System Monitor

---

#### NOTE

- To review I/M Readiness status, make sure that the ignition key is switched to ON with the engine off.
  - Not all monitors are supported by all vehicles.
- 

-  To retrieve I/M Readiness Status data:
1. Scroll with the arrow keys to highlight **I/M Readiness** from Diagnostic Menu and press the **ENTER** key. If vehicle supports both types of monitors, a screen for monitor type selection displays. Select a monitor type and press the **ENTER** key.

Diagnostic Menu	
1	System Status
2	Read Codes
3	Erase Codes
4	Live Data
5	Freeze Frame
6	I/M Readiness
7	O2 Monitor Test
8	On-board Monitor Test

Figure 7-20 Sample Diagnostic Menu Screen

- Depending on readiness test, one of these 2 screens will be present. Use the up and down arrow keys to scroll through data to select lines, and left and right arrow keys to scroll back and forth through different screens of data.

Since DTCs cleared		
Malfunction Indicator lamp(MIL) Status	OFF	
Misfire Monitoring	OK	
Fuel system Monitoring	OK	
Comprehensive component Monitoring	OK	
Catalyst Monitoring	INC	
Heated Catalyst Monitoring	N/A	
Evaporative system Monitoring	INC	
Secondary air system Monitoring	N/A	

Figure 7-21 Sample IM Readiness Screen 1

Or

This Drive Cycle		
Malfunction Indicator lamp(MIL) Status	OFF	
Misfire Monitoring	OK	
Fuel system Monitoring	OK	
Comprehensive component Monitoring	OK	
Catalyst Monitoring	INC	
Heated Catalyst Monitoring	N/A	
Evaporative system Monitoring	INC	
Secondary air system Monitoring	N/A	

Figure 7-22 Sample IM readiness screen 2

- Press the **BACK** key to exit.

## 7.7 O2 Monitor Test

OBD II regulations require certain vehicles monitor and test oxygen (O2) sensors to isolate fuel and emissions related faults. The O2 Monitor Test function is used to retrieve completed O2 sensors monitor test results.

The O2 Monitor Test is not an on-demand test. O2 sensors are not tested when selected via the menu but tested when engine operating conditions are within specified limits.

If the vehicle uses a controller area network (CAN) protocol to communicate, this function is not supported by vehicle. Refer to “On-Board Monitor Tests” on page 38-39 for O2 monitor data of CAN-equipped vehicles.

- ▶ To retrieve O2 monitor data:
1. Scroll with the arrow keys to highlight **O2 Monitor Test** from Diagnostic Menu and press the **ENTER** key. A screen with a list of available sensors displays.

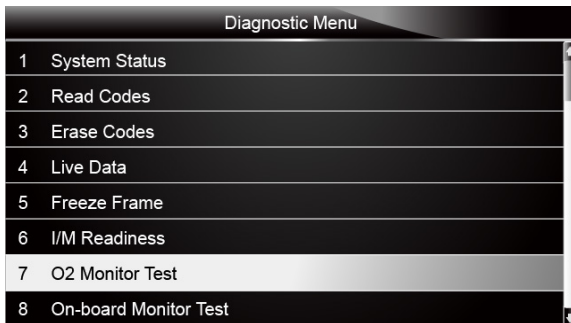


Figure 7-23 Sample Diagnostic Menu Screen

2. Scroll with the arrow keys to highlight an O2 sensor and press the **ENTER** key to confirm. A screen with details of the selected sensor displays.

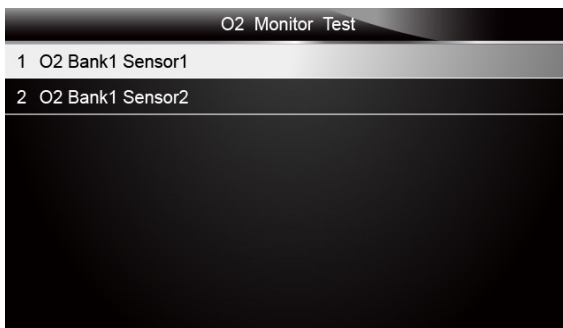


Figure 7-24 Sample O2 Monitor Test screen

3. Use the up and down arrow keys to scroll through data to select lines, and left and right arrow keys to scroll back and forth through different screens of data.

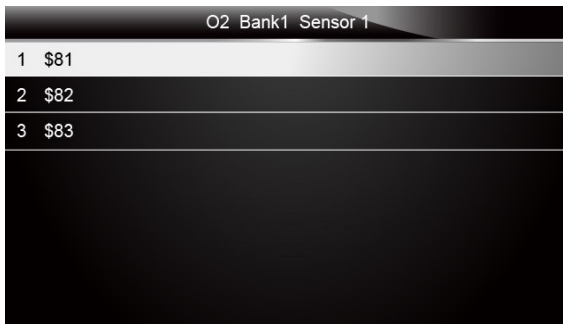
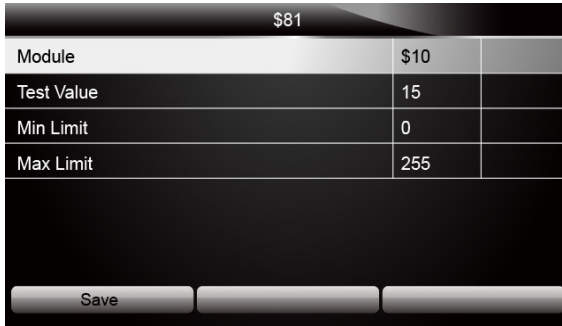


Figure 7-25 Sample O2 Bank1 Sensor 1 Screen

4. Press **Enter** key to view data of selection.



\$81	
Module	\$10
Test Value	15
Min Limit	0
Max Limit	255
Save	

Figure 7-26 Sample data of \$81 screen

5. Press the **BACK** key to exit and return.

## 7.8 On-Board Monitor Test

The On-Board Monitor Test function is useful after servicing or after clearing a vehicle ECU's memory. It receives test results for emission-related powertrain components and systems that are not continuously monitored for Non-CAN vehicles. And for CAN vehicles, it receives test data for emission-related powertrain components and systems that are and are not continuously monitored. It is vehicle manufacturer who is responsible for assigning test and component IDs.

### NOTE

Test results do not necessarily indicate a faulty component or system.

- ▶ To request on-board monitor test results:
1. Scroll with the arrow keys to highlight **On-Board Monitor Test** from Diagnostic Menu and press the **ENTER** key.

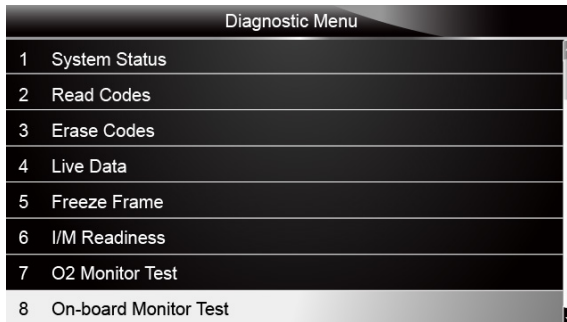


Figure 7-27 Sample Diagnostic Menu Screen

2. Depending on the protocol the vehicle used, one of these 2 screens shows.

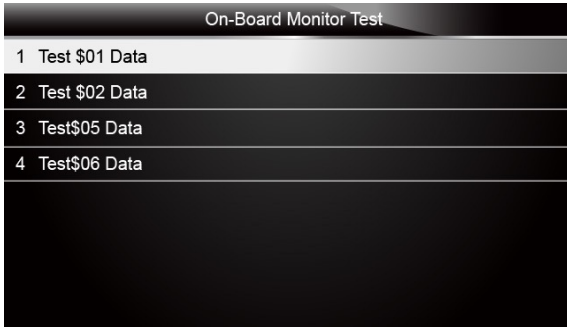


Figure 7-28 Sample Non-CAN Vehicle Test Screen

Or

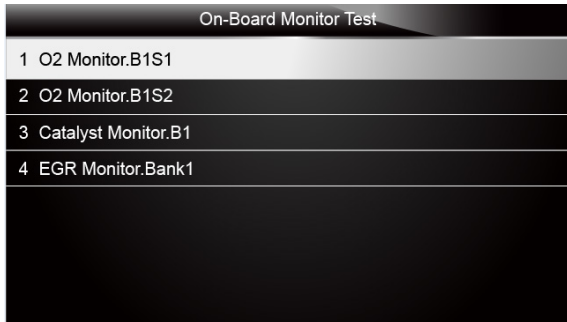


Figure 7-29 Sample CAN vehicle test screen

3. Scroll with the arrow keys to highlight a test group and press the **ENTER** key to confirm. A screen with details of the selected sensor displays. Use the up and down arrow keys to scroll through data to select lines, and left and right arrow keys to scroll back and forth through different screens of data.

For non-CAN vehicles, test screen is illustrated as below:

Test \$01 Data		
ID	00	
Module	\$10	
Test Value	0000	
Min Limit	----	
Max Limit	0000	
Status	OK	

Figure 7-30 Sample Non-CAN vehicle test screen

For CAN vehicles, test screen is illustrated as below:

Test \$01 Data		
MEAS	0.450	
MIN	0.312	
MAX	0.630	
STS	OK	

Figure 7-31 Sample Can vehicle test screen

4. Press the **BACK** key to exit and return.

## 7.9 Component Test

Component Test allows the scanner to control operation of vehicle components, tests or systems.

---

### NOTE

- Some manufacturers do not allow tools to control vehicle systems.
  - The manufacturer sets the criteria to automatically stop test. Refer to appropriate vehicle service manual before using this function.
- 

- ▶ To perform a component test:
1. Scroll with the arrow keys to highlight **Component Test** from Diagnostic Menu and press the **ENTER** key. A screen with a list of available tests displays.

Diagnostic Menu	
6	I/M Readiness
7	O2 Monitor Test
8	On-board Monitor Test
9	Component Test
10	Vehicle Info.
11	Modules Present
12	DTC Lookup
1	System Status

Figure 7-32 Sample Diagnostic Menu Screen

2. Scroll with the arrow keys to highlight a system or component, press the **ENTER** key to start test and the scanner displays the message “Command Sent!”.

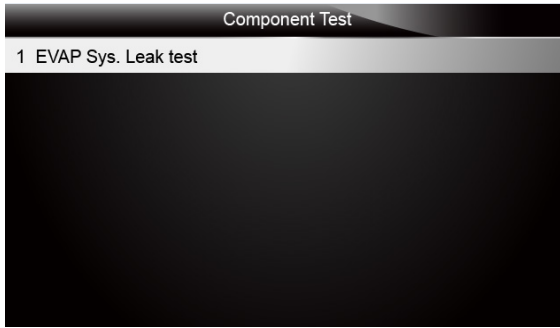


Figure 7-33 Sample Component test screen

3. Press the **BACK** key to exit and return.

## 7.10 Request Vehicle Information

Vehicle Information allows to request the vehicle's VIN number, calibration ID(s) which identifies software version in vehicle control module(s), calibration verification numbers (CVN(s)) and in-use performance tracking on model year 2000 and newer OBD II compliant vehicles.

CVNs are calculated values required by OBD II regulations. They are reported to check if emission-related calibrations have been changed. Multiple CVNs may be reported for a control module. It may take several minutes to do the CVN calculation. In-use performance tracking tracks performance of key readiness monitors.

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### NOTE

Available options will vary depending on the vehicle under test.

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- ▶ To request vehicle information:
1. Scroll with the arrow keys to highlight **Vehicle Info.** from Diagnostic Menu and press the **ENTER** key.

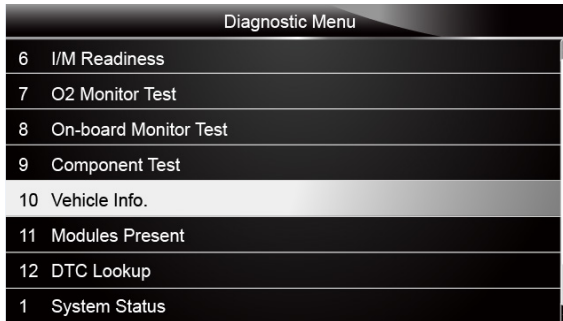


Figure 7-34 Sample Diagnostic Menu Screen

2. Follow on-screen instruction and send the command to read vehicle information. A screen with a list of available options displays.

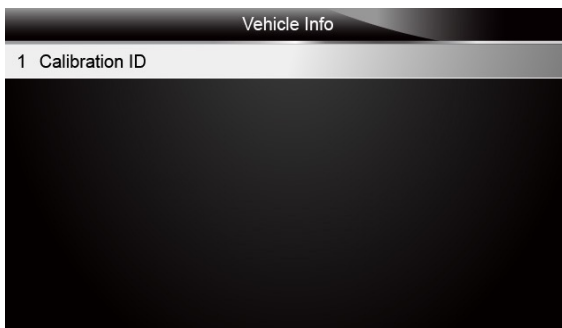


Figure 7-35 Sample Vehicle Info Screen

3. Scroll with the arrow keys to highlight an available option and press the **ENTER** key. A screen with details of the selected option displays.



Figure 7-36 Sample Calibration ID Screen

4. Press function key **Save** to store the readiness data. Or use the **BACK** key to exit and return.

## 7.11 Modules Present

The scanner identifies module IDs and communication protocols for OBD2 modules in the vehicle.

▶ To view module IDs and communication types:

1. Scroll with the arrow keys to highlight **Modules Present** from Diagnostic Menu and press the **ENTER** key.

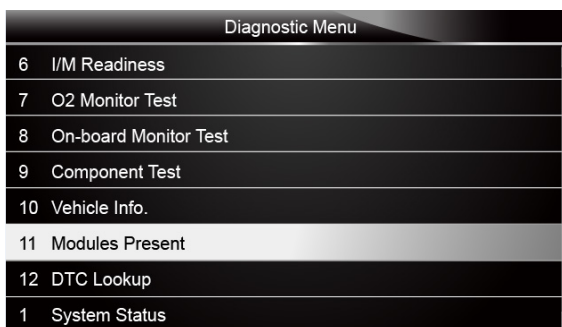


Figure 7-37 Sample Diagnostic Menu Screen



2. A screen with the module IDs and protocols displays.

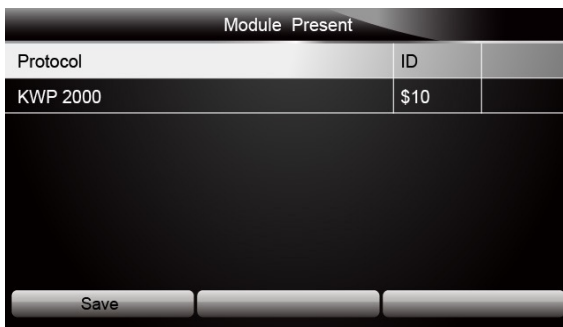


Figure 7-38 Sample Module Present Screen

3. Press function key **Save** to store the readiness data. Or use the BACK key to exit and return.

## 7.12 DTC Lookup

DTC Lookup menus allows to request DTC definitions stored in the scan tool.



To Look up DTCs:

1. Scroll with the arrow keys to highlight **DTC Lookup** from Diagnostic Menu and press the **ENTER** key.

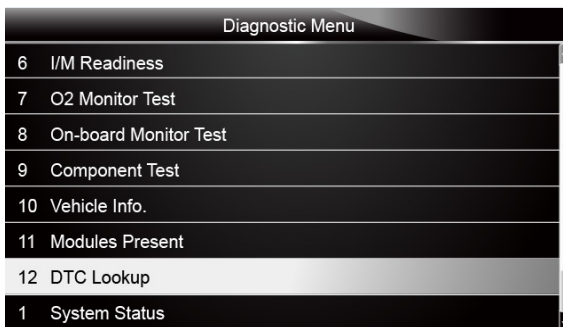


Figure 7-39 Sample Diagnostic Menu Screen

2. Enter a valid code number and press the function key **Finish**.



Figure 7-40 Sample DTC Lookup Screen

3. A screen with code number and its definition displays. If definition could not be found (SAE or Manufacturer Specific), the scanner displays “DTC definition not found! Please refer to vehicle service manual!” If a P1xxx, C1xxx, B1xxx or U1xxx code is entered, select a vehicle make to look for DTC definitions. Press the **Back** key to exit.

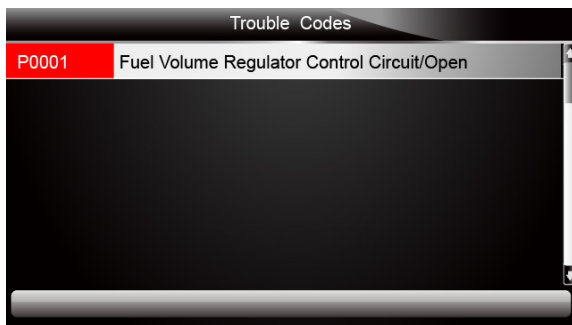


Figure 7-41 Sample Trouble Codes Screen

## 8 Playback Data

The Playback option leads to screens for review of recorded test results.

- ▶ To review recorded data:
1. Scroll with the arrow keys to highlight **PlayBack** from home screen and press the **ENTER** key.

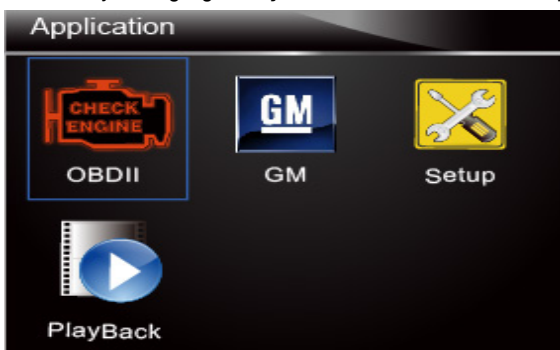


Figure 8-1 Sample Home Screen

2. A screen with a list of test records displays. If no data is recorded, the message “No Data available!” is displayed.

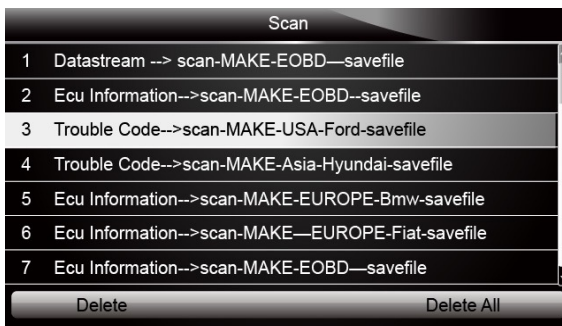


Figure 8-2 Sample Playback Screen

3. Scroll with the arrow keys to highlight a vehicle record and press the **ENTER** key. Details of the test record displays. Use the up and down arrow keys to scroll through data to select lines.

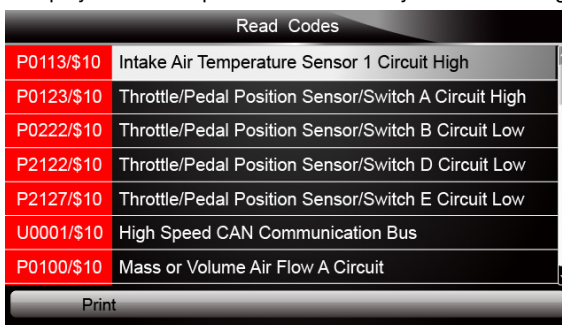


Figure 8-3 Sample Test Data Details Screen

4. If you are reviewing live data or freeze frame data, use the function key **Next Frame** or **Pre. Frame** to scroll through all possible frames when necessary.

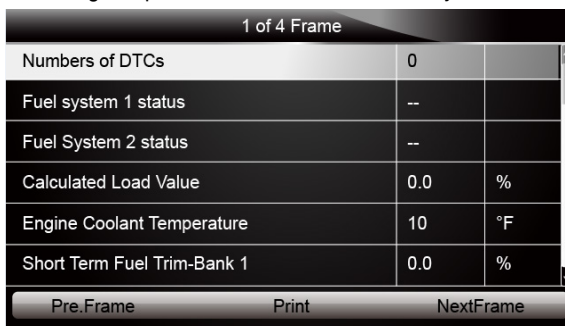


Figure 8-4 Sample Test Data Details Screen

5. To erase a record, scroll with the arrow keys to highlight it and press the function key **Delete**. To delete all records, press the function key **Delete All**. Answer **Yes** to delete and **No** to quit.

# 9 System Setup

This section illustrates how to program the scanner to meet your specific needs.

When Setup application is selected, a menu with available service options displays. Menu options typically include:

- Language
- Unit
- Beep Set
- Key Test
- LCD Test
- About
- Shortcuts

## 9.1 Select Language

Selecting Language opens a screen that allows you to choose system language. The scan tool is set to display English menus by default.

- ▶ To configure system language:
1. Scroll with the arrow keys to highlight **Language** from Setup menu and press the **ENTER** key.



Figure 9-1 Sample Setup Screen

2. Press the **LEFT/RIGHT** arrow key select a language and press the **ENTER** key to confirm. Press the **Back** key to exit and return.



Figure 9-2 Sample Language Selection Screen

## 9.2 Change Units

Selecting Unit opens a dialog box that allows you to choose between US customary or metric units of measure.

- ▶ To change the unit setup:
1. Scroll with the arrow keys to highlight **Units** from Setup menu and press the **ENTER** key.



Figure 9-3 Sample Setup Screen

2. Press the **LEFT/RIGHT** arrow key select an item and press the **ENTER** key to save and return.

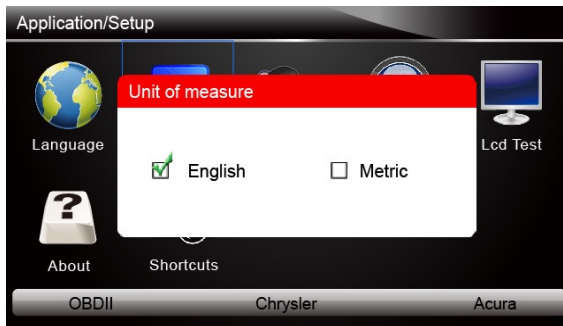


Figure 9-4 Sample Language Selection Screen

## 9.3 Configure Beeper

Selecting Beep Set opens a dialog box that allows you to turn on/off the beeper.

- ▶ To turn on/off the beeper:
1. Scroll with the arrow keys to highlight **Beep Set** from Setup menu and press the **ENTER** key.



Figure 9-5 Sample Setup Screen

2. Press the **LEFT/RIGHT** arrow key select an item and press the **ENTER** key to save and return.

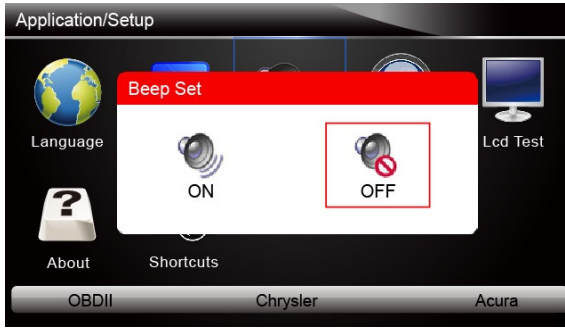


Figure 9-6 Sample Beeper On/Off Selection Screen

## 9.4 Test Keypad

Selecting Key Test option opens a screen that allows you to check the functionality of the keypad.

- ▶ To test the keypad:
1. Scroll with the arrow keys to highlight **Key Test** from Setup menu and press the **ENTER** key.



Figure9-7 Sample Setup Screen

2. Press any key to start test. The virtue key corresponding with the key you pressed will be highlighted on the screen if it works correctly.



Figure 9-8 Sample Key Test Screen

3. To quit the test, click the F2 function key twice.

## 9.5 LCD Keypad

Selecting LCD Test option opens a screen that allows you to check the functionality of the display.

- ▶ To test the display:
  1. Scroll with the arrow keys to highlight **LCD Test** from Setup menu and press the **ENTER** key to start test. Check if there are any missing spots in the LCD screen.

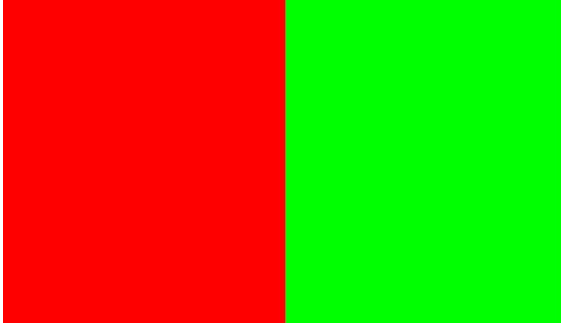


Figure 9-9 Sample LCD Test Screen

2. To quit the test, press the **Back** key.

## 9.6 Tool Information

Selecting About option opens a screen that shows information about your scan tool, such as serial number and register password which may be required for product registration.

- ▶ To view information of your scan tool:
  1. Scroll with the arrow keys to highlight **About** from Setup menu and press the **ENTER** key.



Figure 9-10 Sample Setup Screen

2. A screen with detailed information of the scanner displays.



Figure 9-11 Sample Tool Information Screen

3. Press the **Back** key to exit and return to the Setup menu.

## 9.7 Configure Shortcut Keys

Selecting Shortcuts option lets you to change the functionality of the shortcut buttons.



To assign a function to a shortcut button:

1. Scroll with the arrow keys to highlight **Shortcuts** from Setup menu and press the **ENTER** key. A screen with available shortcut keys displays.



Figure 9-12 Sample Setup screen

2. Press the **UP/DOWN** arrow key select a shortcut key and press the **ENTER** key. A screen with a list of loaded applications displays.

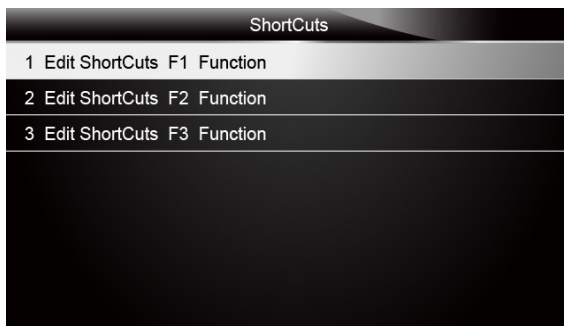


Figure 9-13 Sample Shortcuts Screen

3. Scroll with the **UP/DOWN** arrow keys to highlight an application and press the **ENTER** key to assign the application to the shortcut key. Press any key to exit.



# 10 Update

The scanner can be updated to keep you stay current with the latest development of diagnosis. This section illustrates how to register and update your scanner.

▶ To update your scanner, please follow the three steps as below:

Step1: Obtain an FOXWELL ID.

Step2: Register the product with the product serial number and product password.

Step3: Update the product by the update application FoxScanner.

To be able to use FoxScanner, PC or laptop must meet the following minimum requirements:

- Operation System: Win98/NT, Win ME, Win2000, Win XP, VISTA and Windows 7.
- CPU: Intel PIII or better
- RAM: 64MB or better
- Hard Disk Space: 30MB or better
- Display: 800\*600 pixel, 16 byte true color display or better
- Internet Explorer 4.0 or newer

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## NOTE

Before registration and updating, please make sure your network works correctly.

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If you have already had a Foxwell ID, just click the Sign in link at the top right of the website to log in. Alternatively, Visit our site [www.foxwelltech.com](http://www.foxwelltech.com) and go the **Product** page. Find your product model and click it to view the product profile. Select **Download** tab to download the PC application file. Please refer to 10.1.2 for details.

## 10.1 Create a Foxwell ID

### 10.1.1 Register through Website

If you are new to FOXWELL, please register on [www.foxwelltech.com](http://www.foxwelltech.com) and create a FOXWELL ID first. If you have installed the update application FoxScanner, please refer to the registration guide on 8.1.2.

▶ To register through website:

1. To create a Foxwell ID and register your scan tool

a. Visit our site [www.foxwelltech.com](http://www.foxwelltech.com) and then select **Support>Register**.

The screenshot shows the FOXWELL website's navigation menu. The 'Support' tab is selected and highlighted in red. Under the 'Support' menu, the 'Register' option is highlighted with a red rectangular box. The main content area displays a breadcrumb trail: 'HOME >Support > FAQ'. Below this, a list of support topics is shown, including 'How to update NT6XX, NT5XX and NT4XX series scanners?', 'Why can't I register my scanner?', 'How to update code reader NT301 or TPMS Trigger Tool NT1001?', 'How to update NT600/NT300/NT405 which may not be found at our website any longer?', 'How to find my Foxwell ID?', 'How to find my password?', 'How to find the software version number?', and 'Why can't I find AU Ford, Holden or Brazilian GM from Automaster Pro series Scanners?'.

Figure 10-1 Sample Register Screen

b. Click **Register** link at the top right of the website or at the lower side of home page.

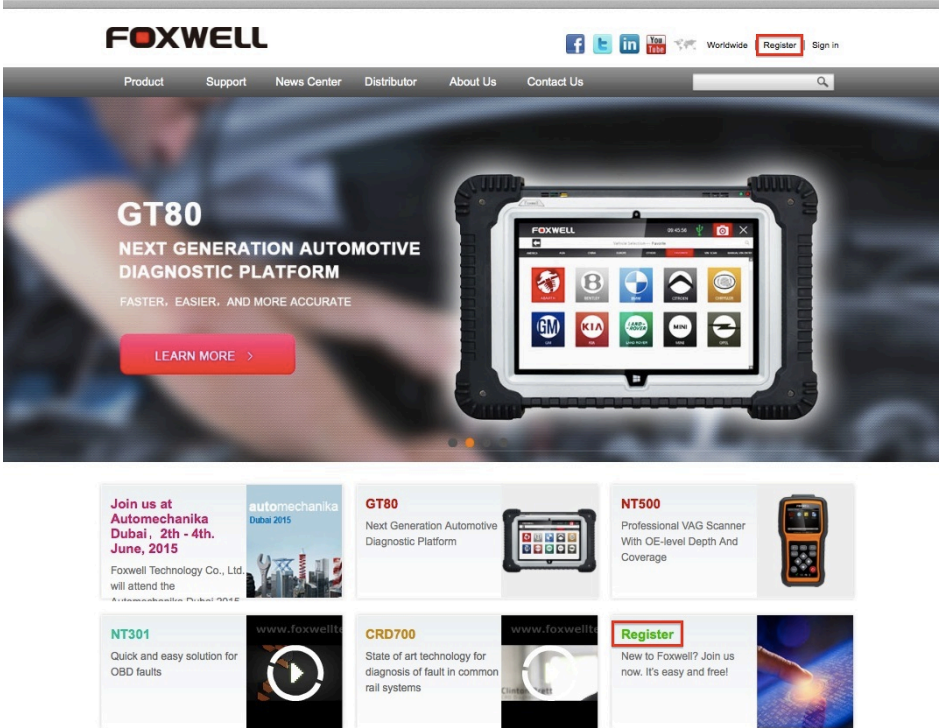


Figure 10-2 Sample Register Screen

2. Create a unique user ID and password, complete the following registration form and then click Submit to confirm. When your ID has been created, you are allowed to view all programs associated with your tool, download updates, edit your profile, submit feedback and join our community to share your ideas and your stories about our products.

Fill in your personal information


<p>*Foxwell ID <input type="text" value="Foxwellsupport"/></p> <p>*Password <input type="password" value="*****"/></p> <p>*Confirm Password <input type="password" value="*****"/></p> <p>*First Name <input type="text" value="foxwell"/></p> <p>Middle Name <input type="text"/></p> <p>*Last Name <input type="text" value="support"/></p> <p>*Email <input type="text" value="helen.ou@foxwelltech.com"/></p> <p>*Phone <input type="text" value="96-755-26697229"/></p> <p>Company <input type="text"/></p> <p>Address 1 <input type="text"/></p> <p>Address 2 <input type="text"/></p> <p>City <input type="text"/></p> <p>State/Province <input type="text"/></p> <p>*Country <input type="text" value="china"/></p> <p>Zip Code <input type="text"/></p> <p>*Captcha <input type="text" value="02V6"/>  <a href="#">Click image to refresh</a></p> <p style="font-size: small; color: blue;">By creating an account, you agree to Foxwell's <a href="#">Conditions of Use</a> and <a href="#">Privacy Notice</a>.</p>	<p>Please create a unique user name as your Foxwell ID. Your phone number or email address is recommended.</p> <p>The password must include 6-16 numbers (0-9) and letters. Use upper and lower case letters (A-Z, a-z) or symbols (?-!@#) if you want to make it more secure.</p> <p>This email is used to retrieve your password in case you forgot it. Please make sure the email you entered works correctly.</p>
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Figure 10-3 Sample Registration Form Filling Screen

**IMPORTANT**

Please always remember your FOXWELL ID and Password as it's important for you to manager your product and updates.

3. A **Submit OK** message will appear if you registered successfully and an email will be sent to your registered email address containing a link with which you can activate the Foxwell ID. Please log in your email and activate the account.

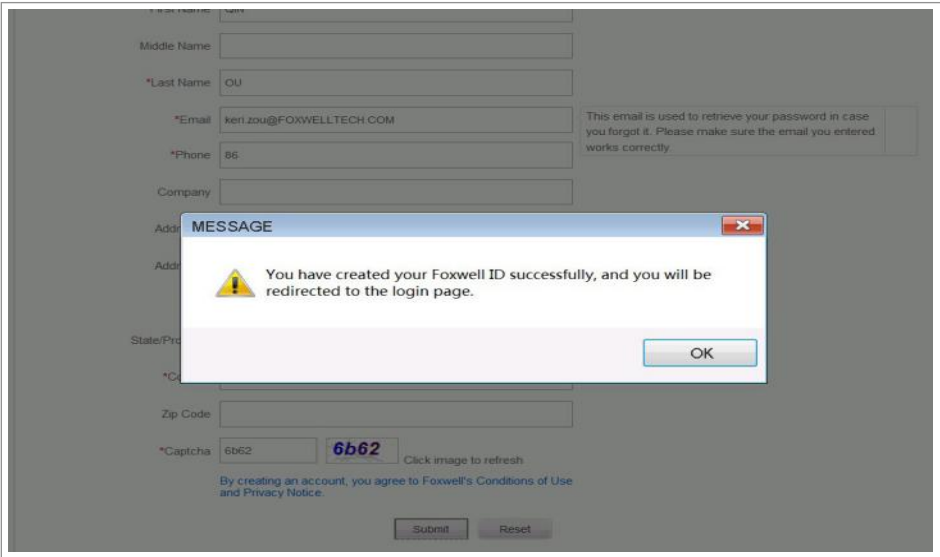


Figure 10-4 Sample Succeed Registration Screen

**IMPORTANT**

Before confirming your email address by clicking the activation link in your email, your account will still be invalid and you are not be allowed to sign in.

4. The registration page will be bypassed, skipping to the log in page. Just input your FOXWELL ID and Password to sign in.

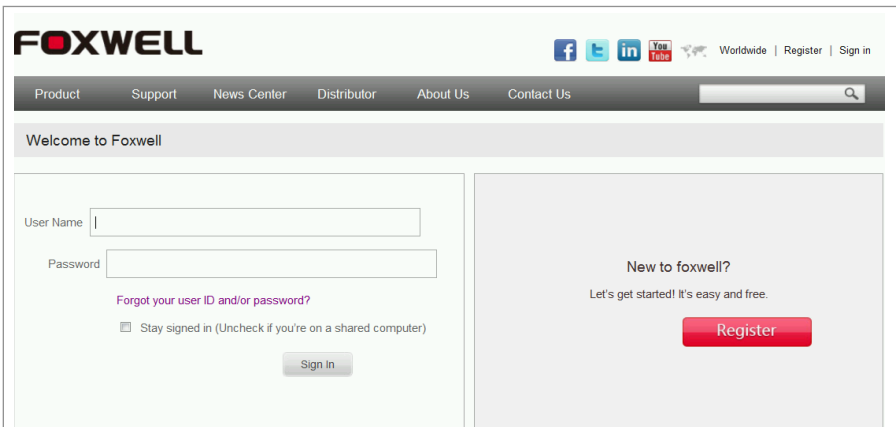


Figure 10-5 Sample Sign in Screen

5. When log in successfully, the **Member Center** will show as below. This platform enables you to review the registered products, register new products, modify personal information or reset the password.

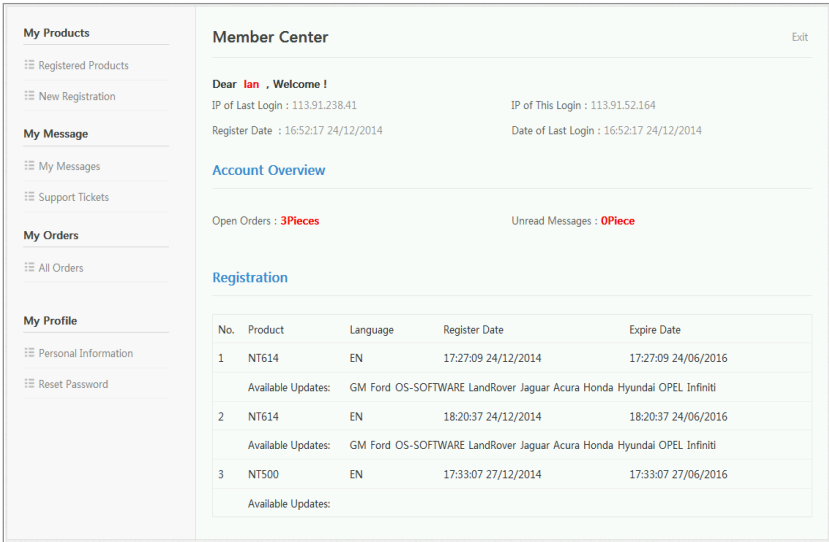


Figure 10-6 Sample Member Center Screen

6. If you forget your register ID or password, just click **Sign in** at the top right of the website, then click **Forgot your user ID and/or password?**. You are required to either input the serial number and register password or your registered email address. Then our system will send the user ID and a password reset link to your registered email address.

Figure 10-7 Sample User ID and/or Password Retrieve Screen

7. Please log in your email and click the link to go to the following **Reset Password** page. Input your new password and submit it. Now you are able to log in with your ID and the new password. If you want to change the password, please sign in with your user name and password, then select **My Profile/Reset Password**.

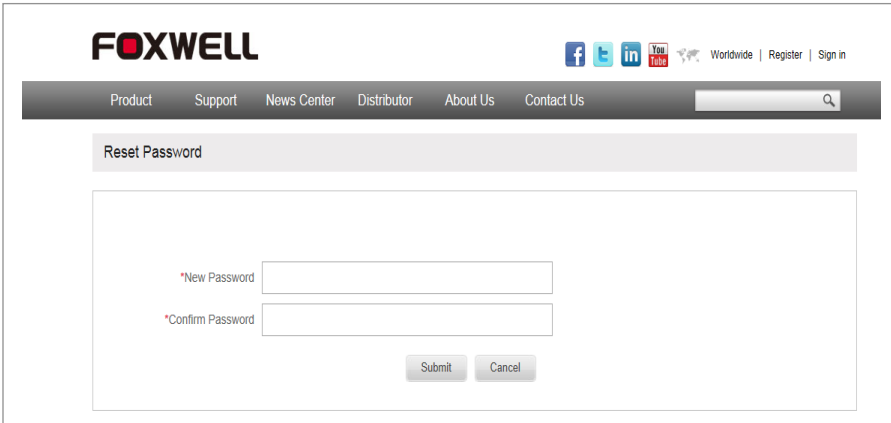


Figure 10-8 Sample User ID and/or Password Retrieve Screen

**NOTE**

If the user name is different with the email you filled when registering, please input the registered email to find your password back, but not user name.

Figure 10-9 The Foxwell ID differs from Email

### 10.1.2 Register with FoxScanner

You are also allowed to register and create a Foxwell ID with the update client FoxScanner.

- ▶ To register through website:
  1. Visit our site [www.foxwelltech.com](http://www.foxwelltech.com) and go the **Product** page. Find your product model and click it to view the product profile. Select **Download** tab to download the PC application file.
  2. Unzip the application file. Follow instructions on computer screen to install the application and driver.



Figure 10-10 Sample FoxScanner installation Screen

3. Double click the desktop icon  to launch the application.



Figure 10-11 Sample FoxScanner Main Screen

4. Click **Register** button, a **Register** window will pop up.

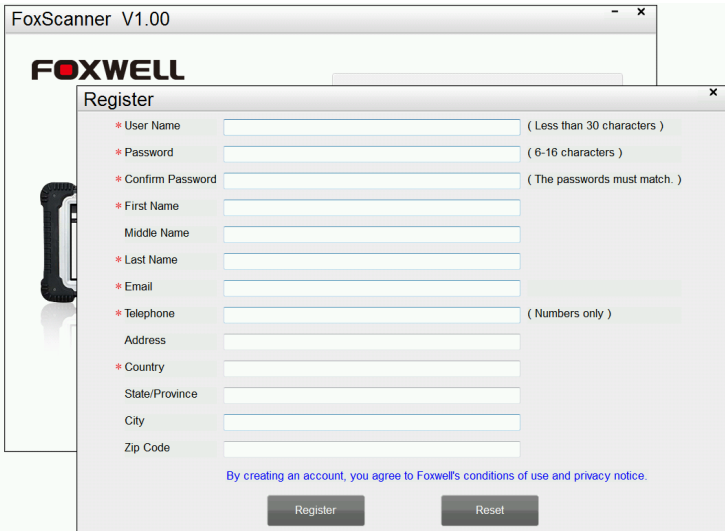


Figure 10-12 Sample Register Screen

5. Create a unique user ID and password, complete the following registration form and click **Register** to confirm.



Figure 10-13 Sample Register Screen

6. A **Registration Done** message will appear if you registered successfully and an email will be sent to your registered email address containing a link with which you can activate the Foxwell ID. Please log in your email and activate the account.



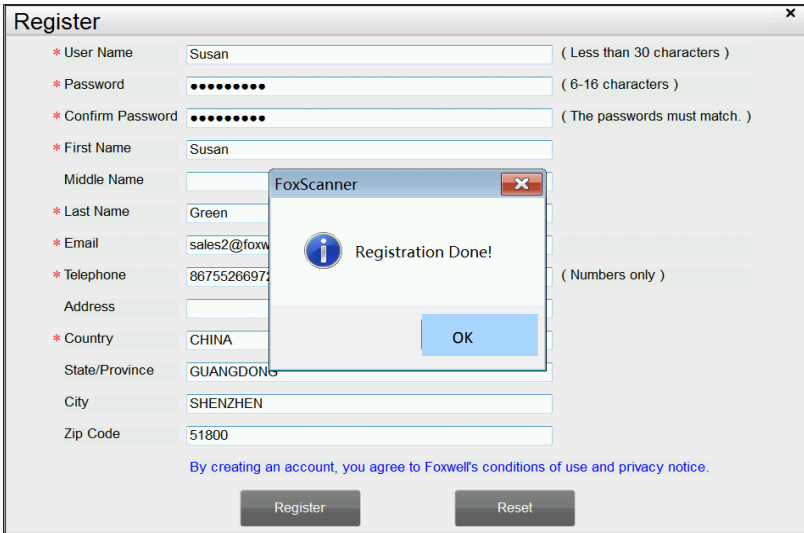


Figure 10-14 Sample Registration Done Screen

7. Click Ok. It skips to the log in page automatically. You can input your Foxwell ID and password to sign in.



Figure 10-15 Sample Log in Screen

## 10.2 Register Your Scanner

To register a scanner, you can either register on [www.foxwelltech.com](http://www.foxwelltech.com) or by the update PC application FoxScanner.

### 10.2.1 Register Through Website

1. Open [www.foxwelltech.com](http://www.foxwelltech.com) main page and click **Sign in**. Input your FOXWELL ID/registered email and password.

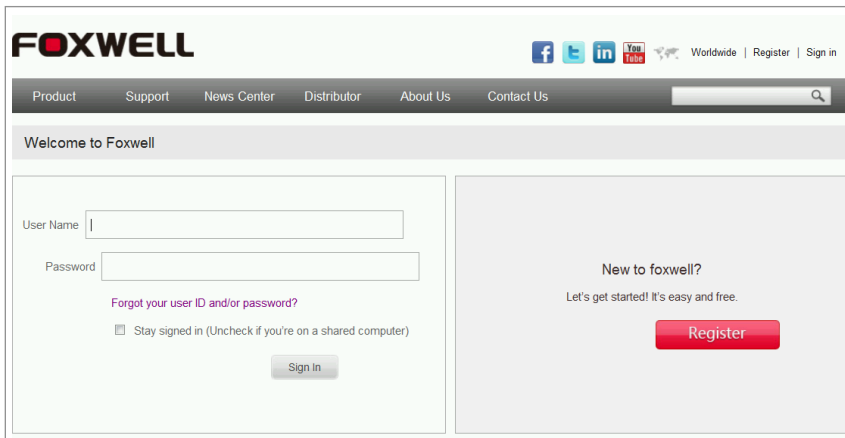


Figure 10-16 Sample Log in Screen

- When log in successfully, the **Member Center** will show as below. This platform enables you to review the registered products, register new products, modify personal information or reset the password.

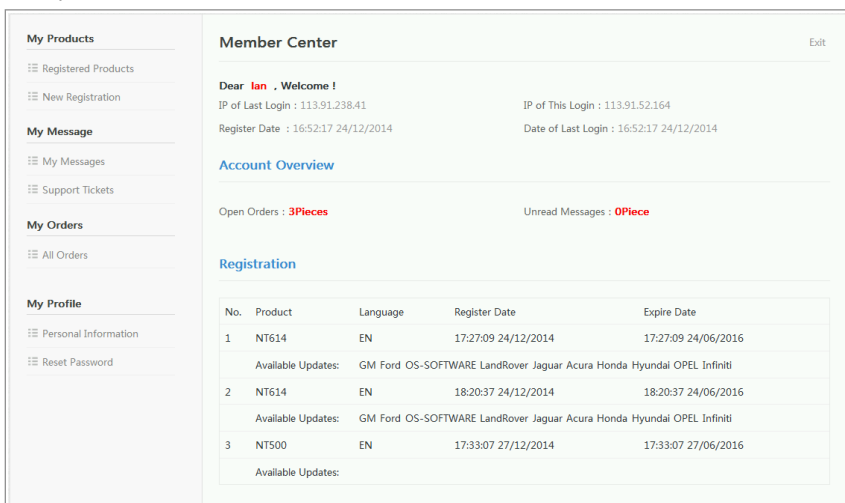


Figure 10-17 Sample Member Center Screen

- To register a product, please click **My Products>New Registration**. Select the right part number, input serial number and password and click the **Submit** button to complete product registration. Please repeat the process if you have more products.

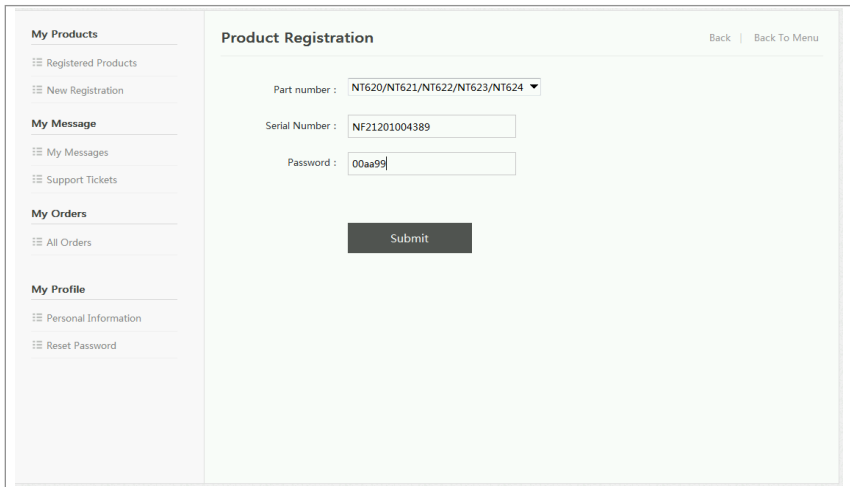


Figure 10-18 Sample New Product Registration Screen

**NOTE**

To check the serial number and password of a device, please boot up it and then select **SETUP>ABOUT**. The serial number and password is right on the ABOUT page.

## 10.2.2 Register With FoxScanner

- ▶ To register with FoxScanner:
  1. Launch the PC application FoxScanner. Log in with your Foxwell ID/ registered email and password.



Figure 10-19 Sample Log In Screen

2. Please select **Register Products** to register it. Input the serial number and password to complete product registration. If you have multiple scanners to be registered, please enter all serial numbers you wish to register and then click **Submit** to register them together.

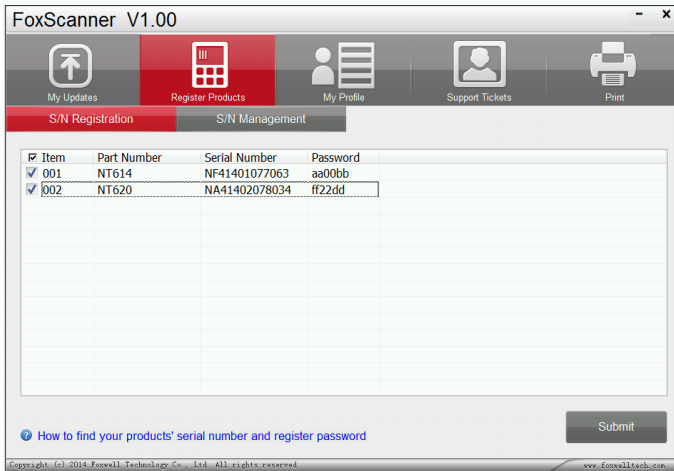


Figure 10-20 Sample New Product Registration Screen

## 10.3 Update the Scanner

To update the scanner, you need the following tools:

- the scan tool
- PC application FoxScanner
- PC or laptop with USB ports
- Internet service
- TF card reader

To be able to use update tool, PC or laptop must meet the following minimum requirements:

- Operation System: Win98/NT, Win ME, Win2000, Win XP, VISTA, Windows 7 and Windows 8.1
- CPU: Intel PIII or better
- RAM: 64MB or better
- Hard Disk Space: 30MB or better
- Display: 800\*600 pixel, 16 byte true color display or better
- Internet Explorer 4.0 or newer

### NOTE

Before updating, please make sure your network works correctly.

Before updating, please make sure you have already created a Foxwell ID.

- ▶ To update your scanner:
1. There are two ways to download the update PC application.
    - a. Visit our site [www.foxwelltech.com](http://www.foxwelltech.com) and go the **Product** page. Find your product model and click it to view the product profile. Select **Download** tab to download the PC application file.
    - b. Log in at <http://www.foxwelltech.com/login/> with you user ID and password and go to the **Registered Product** page. Click **Software Details**. You will find the link right on the top of the software.

Software Details						Back   Back To Menu
Click <a href="#">here</a> to download the update client and start the upgrade.						
Software	Version	Release Date	Language	Status	Action	
ABARTH	V6.00	18/09/2014	EN	Updateable	<a href="#">Upgrade Log</a>	
ACURA	V5.20	19/12/2014	EN	Updateable	<a href="#">Upgrade Log</a>	
ALFA	V6.00	18/09/2014	EN	Updateable	<a href="#">Upgrade Log</a>	
AUDI	V5.20	06/08/2014	EN	Updateable	<a href="#">Upgrade Log</a>	
BENTLEY	V5.20	06/08/2014	EN	Updateable	<a href="#">Upgrade Log</a>	
BENZ	V6.00	06/08/2014	EN	Updateable	<a href="#">Upgrade Log</a>	
BMW	V6.10	04/01/2015	EN	Updateable	<a href="#">Upgrade Log</a>	
BUGATTI	V5.20	06/08/2014	EN	Updateable	<a href="#">Upgrade Log</a>	
CHRYSLER	V5.20	06/08/2014	EN	Updateable	<a href="#">Upgrade Log</a>	

Figure 10-21 Sample FoxScanner Download Screen

- Unzip the application file. Follow instructions on computer screen to install the application and driver.



Figure 10-22 Sample FoxScanner installation Screen


- Double click the desktop icon  to launch the application.
- Remove the TF card from the scanner, put it into the card reader and plug the reader into the computer.
- Log in with your Foxwell ID and password.



Figure 10-23 Sample Sign in FoxScanner Screen

6. Click **My Updates-> Available Updates** and all updates applicable to your scanner display.

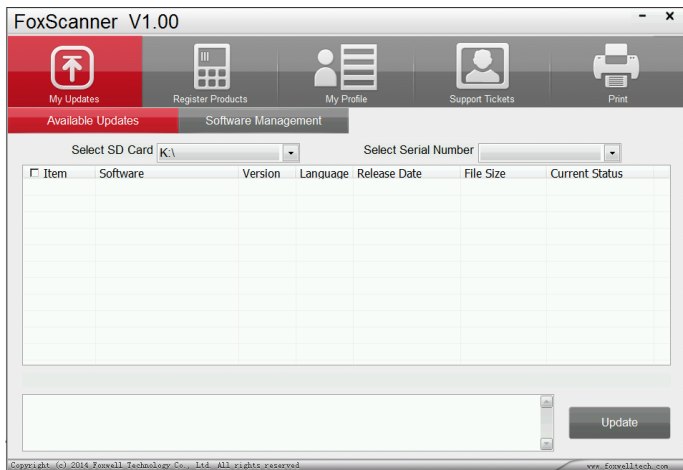


Figure 10-24 Sample My Update Screen

7. In case you formatted your TF card or want to install the updates in an empty memory card, select the right serial number. Please make sure the serial number you selected matches the device you are going to update.

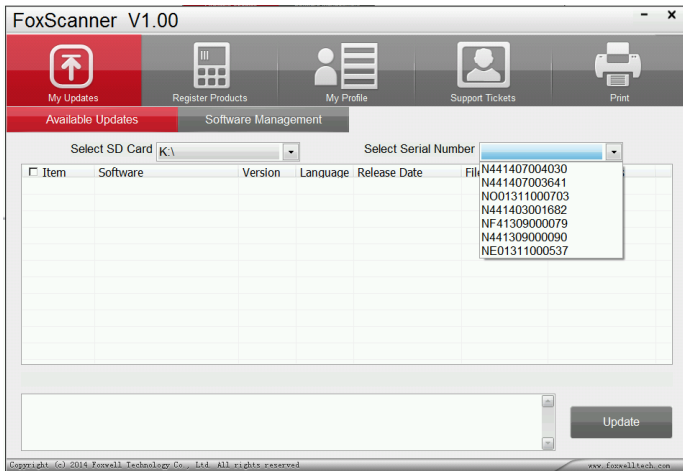


Figure 10-25 Sample My Update Screen

- Click the check box(es) in front of the software you wish to update and then click the **Update** button to download.

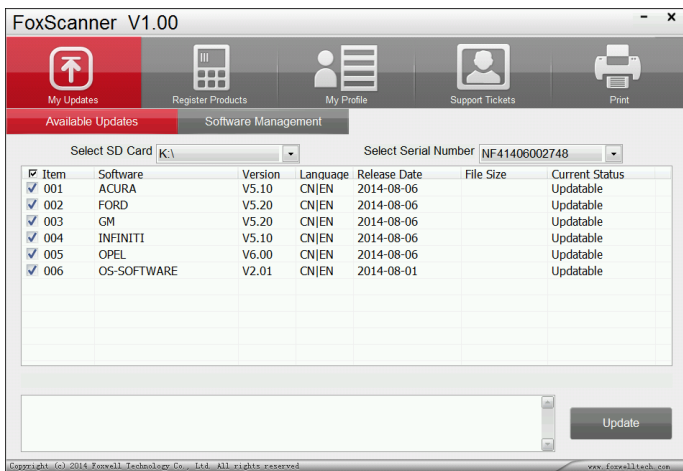


Figure 10-26 Sample Update Check Screen

- When **Update** button is clicked, it begins to download. And you can check the **Current Status**. If the Current Status shows Downloading, please do not close the update application.

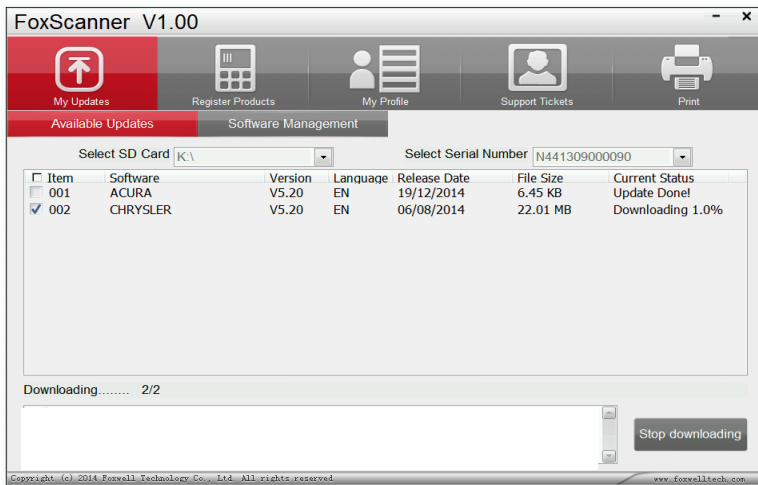


Figure 10-27 Sample Updating Screen

- When all the items are updated, an “Update Done!” message displays and the Available Update items will go blank.

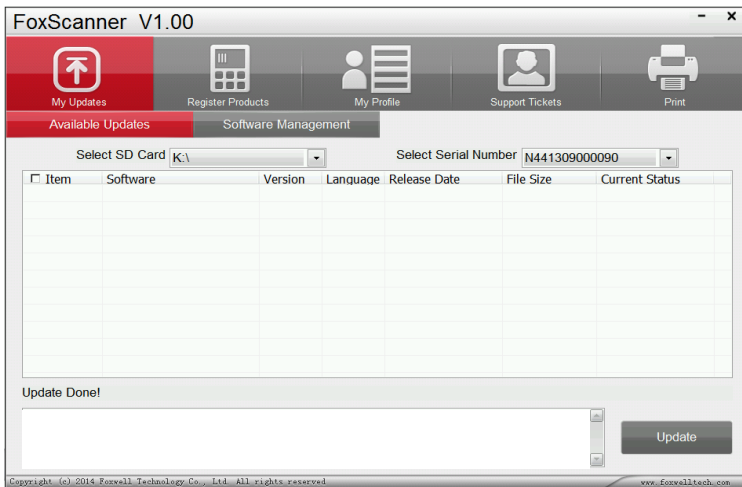


Figure 10-28 Sample Update Completed Screen

- Please click **Software Management** to review all the updated software.



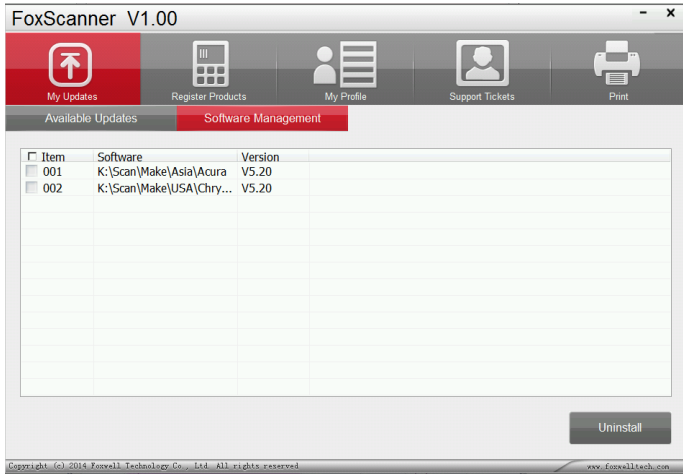


Figure 10-29 Sample Software Management Screen

**NOTE**

If “Update Failed” dialog comes up, it indicates that the software updates failed. Please check the network connection or TF card. If the problem still exists, please contact [support@foxwelltech.com](mailto:support@foxwelltech.com) or your local dealer for assistance.

- To uninstall software or all software, select them and click the **Uninstall** button. And the uninstalled items can be found in the **Updates** screen.

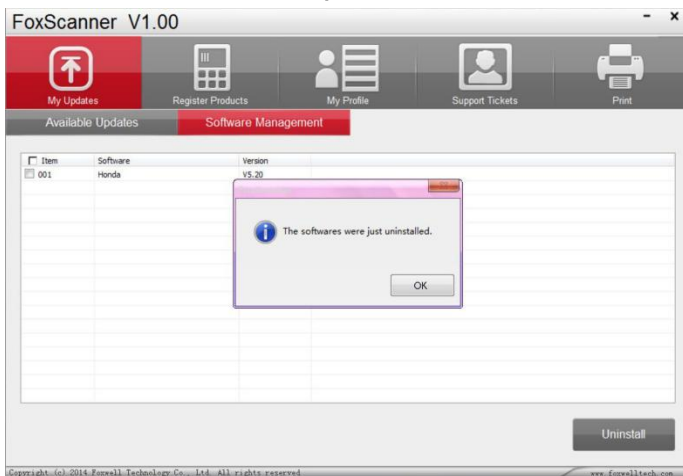


Figure 10-30 Sample Software Uninstallation Screen

- Please click **My Profile** to view your personal information. To modify your personal information, just type in the message box and click **Submit**. To help us provide better sales, please make sure that the telephone, email and country are correctly entered.

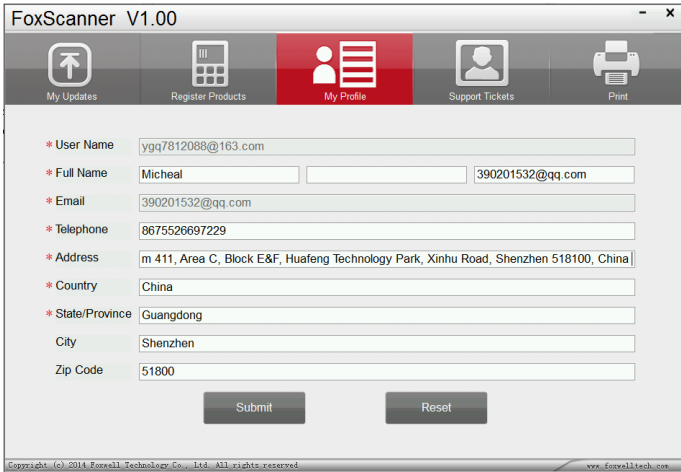


Figure 10-31 Sample Software Uninstallation Screen

14. Should you have any questions regarding the product, please click **Support Tickets**, fill in all required information and click **Submit** to send us your issue.

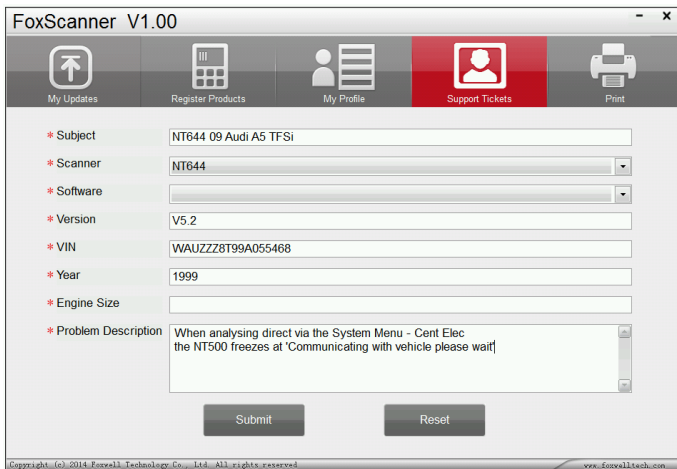


Figure 10-32 Sample Support Ticket Screen

## 10.4 Print Test Results

Vehicle test results stored in the TF card can be printed through computer.



To print test results through computer:

1. Connect the TF card with the computer.
2. Launch the FoxScanner, click **Print** to view all the stored test results.

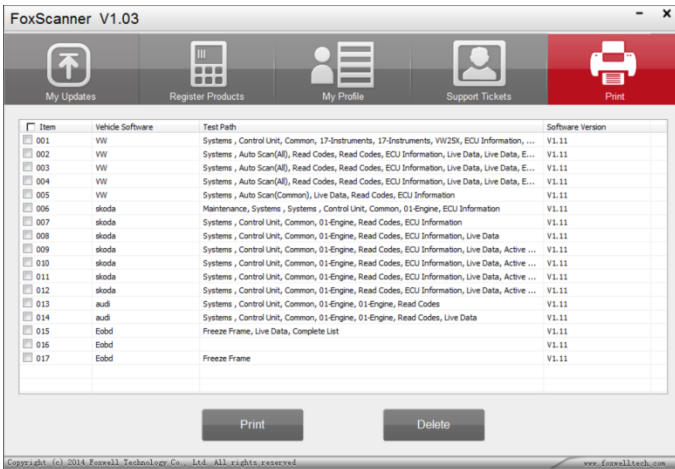


Figure 10-33 Sample Test Results Screen

3. Click the check(s) in front of each line and click **Print**.

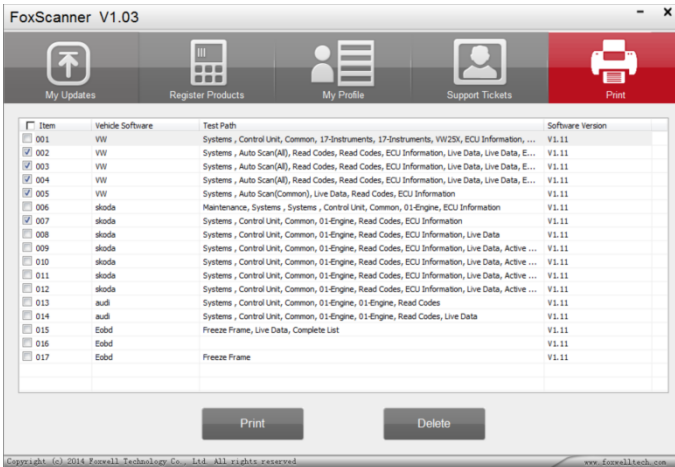


Figure 10-34 Sample Test Results Print Screen