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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.

A DANGER

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

A WARNING

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

A 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.

A 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.

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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
- Keypad Test
- Display 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 Introduction

NT630 Plus Professional ABS & Airbag Reset Tool works on most vehicles on the road today. It does not only have extensive coverage of vehicles but also provides accurate and professional diagnosis of ABS and airbag faults.

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 ABS and airbags control systems. You can also save "recordings" of the data readings, and print stored information

2.1 Scanner Descriptions

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

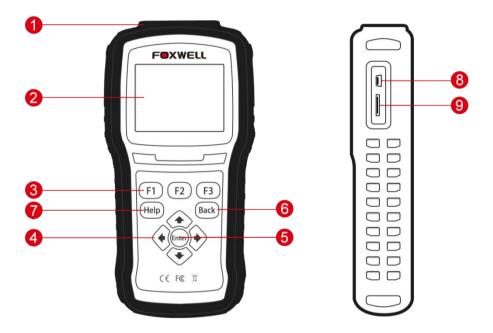


Figure 2-1 front view

- 1 Diagnostic Port provides connection between the scan tool and vehicle.
- 2 LCD Display shows menus, test results and operation tips.
- 3 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.
- 4 Direction Keys select an option or scroll through a screen of data or text.
- 5 **ENTER Key** executes a selected option and generally goes to the next screen.

- 6 BACK Key exits a screen and generally returns to previous screen.
- 7 **HELP Key** displays helpful information.
- 8 USB Port- Connect with computer and software updated directly.
- 9 SD Card Port holds the SD 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 Quick Start Guide provides brief introduction of how to use the scanner.
- 2 User's Guide provides operation instructions for the usage of the scanner.
- 3 Diagnostic Cable provides connection between the scanner and a vehicle.
- 4 **USB Cable** provides connection between the scanner and a computer to update and print data

2.3 Technical Specifications

Display: Backlit, 480*272 TFT color display **Working Temperature:** 0 to 60 $^{\circ}$ C (32 to 140 $^{\circ}$ F) **Storage Temperature:** -20 to 70 $^{\circ}$ C (-4 to 158 $^{\circ}$ F)

Power Supply: 8-18V vehicle power, 12V AC/DC power, 3.3V USB power

Dimensions (L*W*H): 200*130*40mm

Protocols: SAE J1850 (VPW and PWM), ISO 9141-2, ISO 14230-2 (KWP 2000), ISO 15765-4

(CAN)

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:

- 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

- 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.

Following applications are preloaded into the scanner:

- Auto VIN-leads to screens for identifying a car by automatic VIN reading.
- OBDII/EOBD leads to OBDII screens for all 9 generic OBD system tests.
- SAS- leads to screens for steering angle calibration
- ABS&Airbag

 leads to screens for diagnostic trouble code information, live data stream, ECU information, special functions of ABS and airbag systems on 49 vehicle makes sold worldwide.
- Settings leads to screens for adjusting default settings to meet your own preference and view information about the scanner.
- **Update**—leas to scerrn for updating the scanner.



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 keyboad 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:

 When you are requested to input text, press the function key Keyboard, and the keyboard displays.

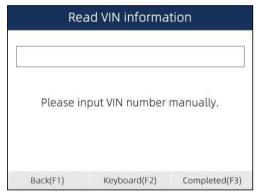
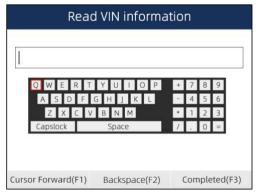


Figure 3-2 Sample Input Text Screen

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



- To delete a letter or number, use the function key Cursor Forward to move the cursor to it and then press the Backspace button.
- 4. When finished the entry, press **Completed** key to continue.

4 Diagnostic Operations

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 48 vehicles and also save "recordings" of the data readings.

4.1 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

NOTE

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

4.1.1 Auto VIN

Auto VIN allows to identifying a vehicle by automatically requesting the vehicle identification number (VIN).



 Scroll with the arrow keys to highlight Auto VIN from the main menu and press the ENTER key to start.



Figure 4-1 Sample Main Menu Screen

Or scroll with the arrow keys to highlight ABS&SRS from the Application 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 4-2 Sample Application Menu

A screen with vehicle manufacturer areas displays. Select the area where the vehicle manufacturer is from. A menu of all vehicle manufacturers from this area displays.



Figure 4-3 Sample Vehicle Manufacturer Area Selection Screen

3. Select the vehicle manufacturer. A list of vehicle identification options displays.

Vehicle				
BMW	FLAT	VOLVO		

Figure 4-4 Sample Vehicle Manufacturer Selection Screen

4. Select SmartVIN from the menu, and press the ENTER key.



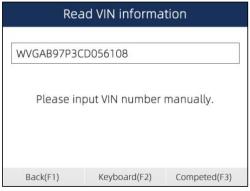
Figure 4-5 Sample VIN Acquisition Screen

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



Figure 4-6 Sample VIN Automatic Acquisition

 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.



4.1.2 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.

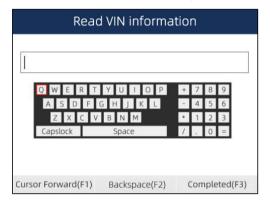


Figure 4-8 Sample Manual VIN Entry with Keyboard

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

4.1.3 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.
 - 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.

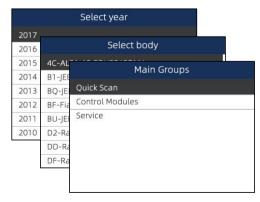


Figure 4-9 Sample Manual Vehicle Selection Screen

4.2 System Selection

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

- Quick Scan
- Control Modules
- Service

4.2.1 Quick Scan

Quick 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 a few minutes to complete the test.



1. Scroll with the arrow keys to highlight Quick Scan from the menu and press ENTER to start.

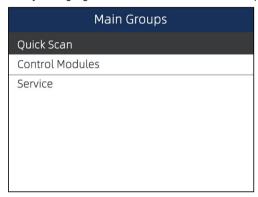


Figure 4-10 Sample Select System Scan Screen

2. 4-11To pause the scan, press the function key corresponding with **Pause** on the screen.



Figure 4-11 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.

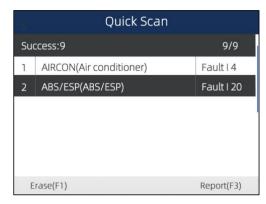


Figure 4-12 Sample Quick scan

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

	Report		
ID	Description		
P012300	Throtle/Pedal Pos Sensor A Cro. lHigh Input -Active/static		
P022200	Throttle/Pedal Position Sensor/ switch BLow nput =Actve/state Ib		
P308700	Supply relay for engne component Electrical malfunction in orout- Passive/Sporadic		
P201400	Intake Manifold Runner Postion Save(F1)		

Figure 4-13 Sample Report screen

- 5. Press function key F1 to save the trouble code information.
- 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.

Function Menu
ECU Information
Read Codes
Clear Codes
Live Data
Special Function

4.2.2 Manual Selection

Manual Selection screen displays all controllers available of the vehicle manufacturer. 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 **Manual Selection** from the menu and press the ENTER key.

A controller menu displays.

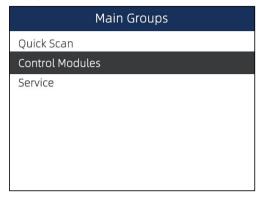


Figure 4-15 Sample Control Unit Menu Screen

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

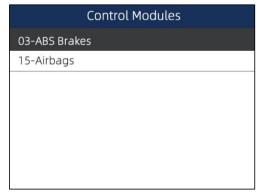


Figure 4-16 Sample Common menu screen

4.3 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
- Erase Codes
- ECU Information
- Live Data
- Special Function

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.

4.3.1 Read Codes

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

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.

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



To read codes from a vehicle:

 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.

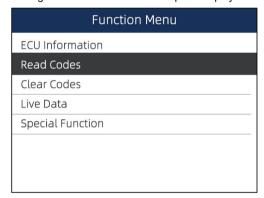


Figure 4-17 Sample Function menu screen

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.

Trouble Codes			
ID	Status	Description	
B1651 2*	Active	Crash recorded in driver sideairbag(Replace SRSCM)	
B1490 ★	History	OCS(Occupant classification system)defet	
B1388 *	History	STPS(Seat track positiom sensor)-Driver open or short to battery	
Save(F1)		Freeze Frame(F2)	

Figure 4-18 Sample Code Screen

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

4.3.2 Clear Codes

Clear 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:

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

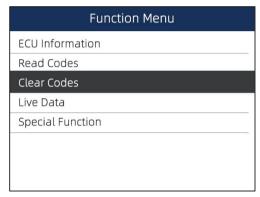


Figure 4-19 Sample Function Menu Screen

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

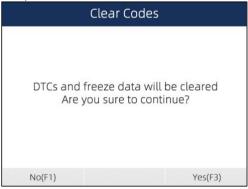


Figure 4-20 Sample Clear Codes Screen

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

4.3.3 ECU Information

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



To read ECU information:

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

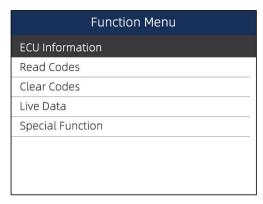


Figure 4-21 Sample Function Menu Screen

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

ECU Information			
MODEL	ВС		
SYSTEM	DEF		
S/W VER	48.49		
ECU P	5041424344		
S/W NUMBER	4243		
Save(F1)			

Figure 4-22 Sample ECU Information Screen

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

4.3.4 Live Data

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

Menu options typically include:

- Complete List
- Custom List

4.3.4.1 Complete 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 the menu and press the **ENTER** key to display the live data menu.

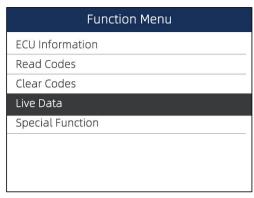


Figure 4-23 Sample Live Data Selection Screen

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

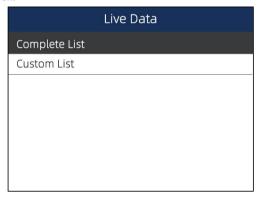


Figure 4-24 Sample Complete List Screen

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.

Live Data				
Name		Vā	alue	Unit
Alocation of oxygen sensorsOxygen sensor bank 2.sensor 4		Not	installed	
Ambient air pressure		11.	б	psi
Calculated oil temperature		21		
Cause for cancellation		0		
Charge air pressure specified		994	4.09820557	НРа
Value				
Pause(F1)	Graph(F2)		Save(F3	3)

Figure 4-25 Sample PID graph 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.

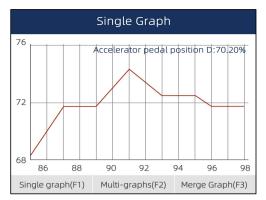


Figure 4-26 Sample PID Graph Screen

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

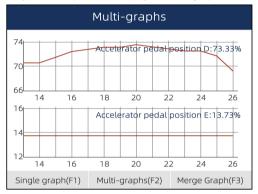


Figure 4-27 Sample Two PID Graph Screen

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

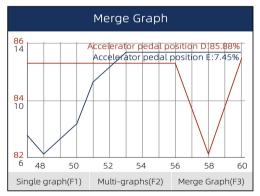


Figure 4-28 Sample Merged PID Plots Screen

- 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 Back to return to text viewing of PID data.

- 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.

4.3.4.2 Custom List

Custom 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 list:

1. Select Custom List from the menu and press the ENTER key.

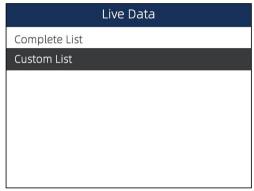


Figure 4-29 Sample Live Data Screen

 The custom data stream 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.

Custom list				
	Steering and	gle sensor-1(ESP o	nly)	11
	Steering and	gle sensor-2(ESP o	nly)	12
	Steering angle sensor-NESP only)		13	
	G-Sensor longitudinal		14	
	G-Sensor lateral		15	
	ABS warning lamp		16	
EBD warning lamp		17		
S	Select All(F1) Deselect(F2) OK(F3)			F3)

Figure 4-30 Sample Custom List Selection Screen

NOTE

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

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

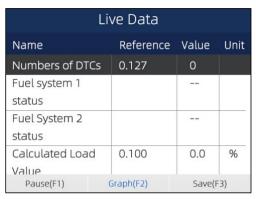


Figure 4-31 Sample Data stream Screen

4.3.5 Special Functions

Special tests are bi-directional diagnostic tests on anti-lock brake systems and air bags. 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 number, and type of tests will vary for each vehicle, year and components.

Typical special 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.
- Autobleed Test, Automated Bleed, or Service Bleed removes air from the internal brake fluid chambers after servicing the brakes.

IMPORTANT

- Before bleeding the brake system, make sure no diagnostic codes are present.
- Do not let the master cylinder run dry during the brake bleeding procedure.
- Do not allow brake fluid to contact the motor pack or the electrical connectors.
- Use a recommended brake fluid. Do not use silicone brake fluids in an ABS-equipped vehicle.

▲ WARNING

After bleeding the brake system, check the brake pedal for excessive travel or a "spongy" feel. Bleed again if either condition is present.

- Automated Test automatically commands each solenoid valve and the pump motor on and off to test for proper operation.
- Brake Bleed Preparation Test prepares the brake lines for bleeding by clearing air
 from the modulator. The test rehomes all the ABS and TCS motors, cycles the TCS
 motors, and then returns all motors to the "home" position at the bottom of the bore.
- Function Test automatically commands the ABS relay, valve solenoids, and pump motor on and off to test for proper operation.
- **Gear Tension Relief Test** relieves tension from the ABS motor gears so you can separate the ABS motor pack from the ABS hydraulic modulator.
- Hydraulic Control Tests allows to manually engage and disengage the ABS

solenoids for troubleshooting the hydraulic functions.

- Idle Up Manual Control Test allows to manually control the idle up actuators.
- Lamp Tests allows to manually control the ABS or TCS warning or indicator lamps.
- Motor Rehome Test prepares the brake lines for bleeding by clearing air from the modulator. The test returns all ABS motors to their "home" positions.
- Pump Motor Tests allows to manually control the pump motor.
- Relay Test allows to manually engage and disengage either the ABS or TCS relays in order to test relay operation.
- Requested Torque Test allows to manually control the engine torque to test for proper operation of the traction control system (TCS).
- Setup SDM Serial Number (Air Bag Sensing and Diagnostic Module) allows to
 program a new air bag serial number into the dash integration module (DIM). You use
 this test after installing a new air bag; otherwise a diagnostic trouble code will be set
 when you turn on the ignition.
- Solenoid Tests allows to manually control the inlet and output valve solenoids.
- System Identification displays information about the brake system, the vehicle, and the ABS controller.
- TCS Test allows to control the pump motor in order to apply fluid pressure to the front wheel circuits.
- Traction Control System (TCS) Manual Control Tests allows to perform motor tests and an adjuster assembly control test.
- Voltage Load Test "loads" the ABS battery supply circuit to test for adequate battery capacity.



 Scroll with the arrow keys to highlight the special function test you want to perform from the menu and press the ENTER key.

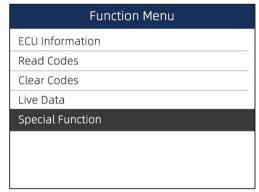


Figure 4-32 Sample Function menu screen

A group selection screen, test selection screen, several step-by-step instruction screens, or bi-directional control screen may appear. Read the screens and follow all instructions. If

necessary, use the function keys to perform commands or answer any questions. If more than 3 function keys displays, use the **Up/Down** arrow keys to select a command and press the **ENTER** key to confirm.

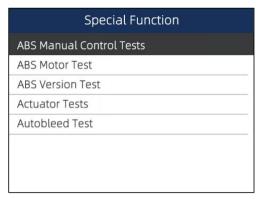


Figure 4-33 Sample Special function screen

3. When completed, press the **BACK** key to return to previous screens.

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.

5 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

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.

5.1 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:

 Scroll with the arrow keys to highlight System Status from Diagnostic Menu and press the ENTER key.

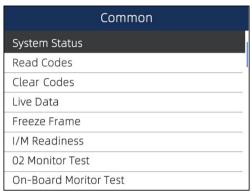


Figure 5-1 Sample Diagnostic Menu Screen

2. A screen with detailed information displays.

System Status		
ML Status	OFF	
Codes Found	0	
Monitors N/A	4	
Monitors OK	3	
Monitors INC	3	
OK(F1)	Save(F3)	

Figure 5-2 Sample System Status Screen

5.2 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:

 Scroll with the arrow keys to highlight Read Codes from Diagnostic Menu and press the ENTER key.

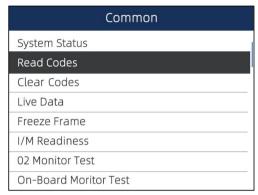


Figure 5-3 Sample Diagnostic Menu Screen

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

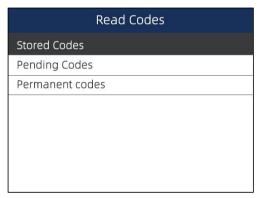


Figure 5-4 Sample Read Codes Screen

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.

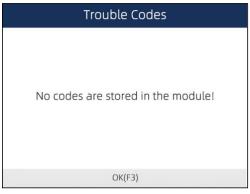


Figure 5-5 Sample No Codes Screen

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 5-6 Sample Code screen

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

5.3 Clear 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:

 Scroll with the arrow keys to highlight Erase Codes from Diagnostic Menu and press the ENTER key

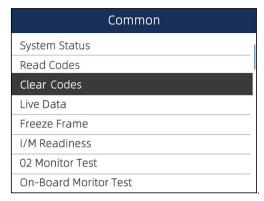


Figure 5-7 Sample Diagnostic Menu Screen

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

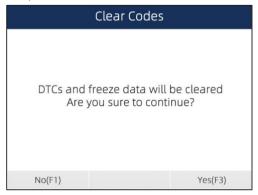


Figure 5-8 Sample Erase Codes Screen

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

5.4 Live Data

Live Data menu lets you view and record real time PID data from the electronic control module. Menu options typically include:

- Complete List
- Custom List

5.4.1 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 the menu and press the **ENTER** key to display the live data menu.

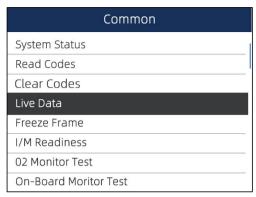


Figure 5-9 Sample Live Data Selection Screen

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

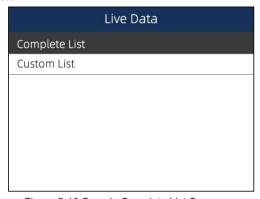


Figure 5-10 Sample Complete List Screen

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.

Live Data			
Name	Value Unit		
Alocation of oxygen sensorsOxygen sensor bank 2.sensor 4	Not installed		
Ambient air pressure	11.6 psi		
Calculated oil temperature	21		
Cause for cancellation	0		
Charge air pressure specifie	d 994.09820557 HPa		
Value			
Pause(F1) Graph(F2) Save(F3)		

Figure 5-11 Sample PID graph 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.

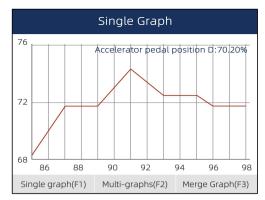


Figure 5-12 Sample PID Graph Screen

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

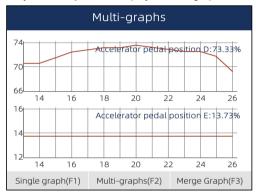


Figure 5-13 Sample Two PID Graph Screen

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

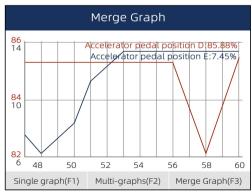


Figure 5-14 Sample Merged PID Plots Screen

- 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 Back to return to text viewing of PID data.

- 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.

5.4.2 Custom 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.

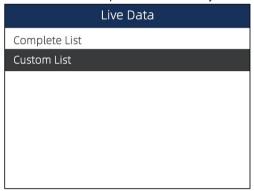


Figure 5-15 Sample Live Data Menu Screen

The custom data stream 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.

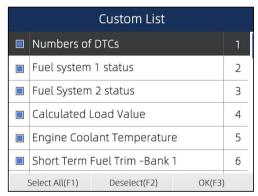


Figure 5-16 Sample Custom Data stream Selection Screen

NOTE

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

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

Complete List			
Name	Reference	Value	Unit
Numbers of DTCs	0.127	0	
Fuel system 1			
status			
Fuel System 2			
status			
Calculated Load	0.100	0.0	%
Value			
Pause(F1)	Graph(F2)	Save(F	3)

Figure 5-17 Sample Data stream Screen

5.5 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.

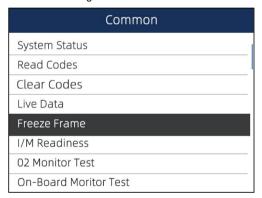


Figure 5-18 Sample Diagnostic Menu Screen

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.

P0030			
Name	Value	Unit	
MIL status indicator(MIL by DTC)	OFF		
Battery voltage	12.4	V	
Engine cooling fan-Low	ON		
Boost pressure sensor	2992	hPa	
Air mass flow	90	kg/h	
Accelerator pedal position sensor	0	%	
Save(F1)			

Figure 5-19 Sample Freeze Data Screen

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

5.6 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 thescanner.

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:

4. 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

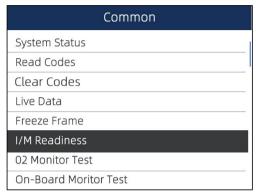


Figure 5-20 Sample Diagnostic Menu Screen

5. 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.

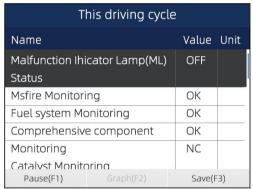


Figure 5-21 Sample IM Readiness Screen 1

Or

This driving cycle			
Name		Value	Unit
Msfire Monitoring		OK	
Fuel system Monitoring		OK	
Comprehensive component		OK	
Monitoring			
Catalyst Monitoring		NO	
Heated Catalyst Monitorng		N/A	
Fvanorative sv Pause(F1)	stem Monitorina Graph(F2)	N/A Save(F	3)

Figure 5-22 Sample IM readiness screen 2

6. Press the BACK key to exit.

5.7 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:

 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.

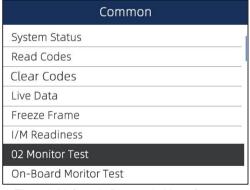


Figure 5-23 Sample Diagnostic Menu Screen

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.

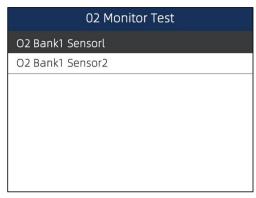


Figure 5-24 Sample O2 Monitor Test screen

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.

02 Bankl Sensorl		
\$81		
\$82		
\$83		

Figure 5-25 Sample O2 Bank1 Sensor 1 Screen

4. Press Enter key to view data of selection.

	\$81	
ID	Status	Descr iption
Module	\$10	
Test Value	15	
Min Limit	0	
Max Limit	255	
Sa	ve(F1)	

Figure 5-26 Sample data of \$81 screen

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

5.8 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:

 Scroll with the arrow keys to highlight On-Board Monitor Test from Diagnostic Menu and press the ENTER key.

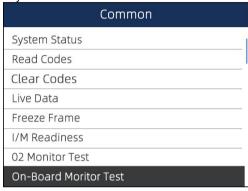


Figure 5-27 Sample Diagnostic Menu Screen

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

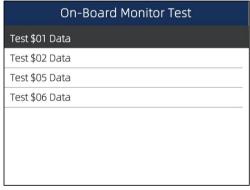


Figure 5-28 Sample Non-CAN Vehicle Test Screen

Or

On-Board Monitor Test		
Exhaust Gas Sensor Monitor Bank 1-Sensor 1		
Exhaust Gas Sensor Monitor Bark 1-Sensor 2		
Exhaust Gas Sensor Monitor Bank 2-Sensor 1		
Exhaust Gas Sensor Monitor Bank 2-Sensor 2		
Catalyst Monitor Bank 1		
Catalyst Monitor Bank 2		
Exhaust Gas Sensor Heater Monitor Bank 1-Sensor 1		
Exhaust Gas Sensor Heater Monitor Bank1-Sensor 2		

Figure 5-29 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 5-30 Sample Non-CAN vehicle test screen For CAN vehicles, test screen is illustrated as below:

\$83 Test			
Name		Value	Unit
Test Value		0.000	
Min Limit		0.000	
Max Limit		0.000	
Status		OK	
Pause(F1)		Save(F3)

Figure 5-31 Sample Can vehicle test screen

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

5.9 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:

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.

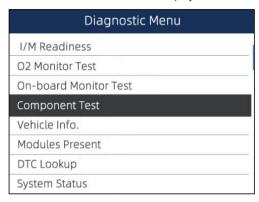


Figure 5-32 Sample Diagnostic Menu Screen

6. 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!".

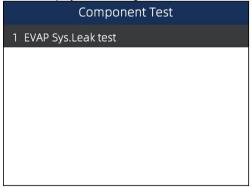


Figure 5-33 Sample Component test screen

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

5.10 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.

NOTE

Available options will vary depending on the vehicle under test.

To request vehicle information:

1. Scroll with the arrow keys to highlight Vehicle Info. from Diagnostic Menu and press the

ENTER kev.

Diagnostic Menu I/M Readiness O2 Monitor Test On-board Monitor Test Component Test Vehicle Info. Modules Present DTC Lookup

System Status

Figure 5-34 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.

Vehicle Info.		
Vehicle ID Number		
Calibration ID		
Cal Verf. Number		
In-use Perform Track		
ECU Name		

Figure 5-35 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.

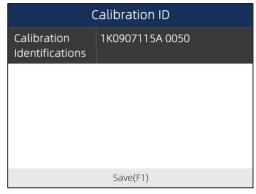


Figure 5-36 Sample Calibration ID Screen

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

5.11 Modules Present

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

To view module IDs and communication types:



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

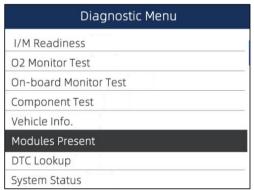


Figure 5-37 Sample Diagnostic Menu Screen

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

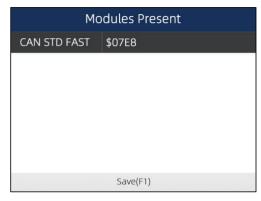


Figure 5-38 Sample Module Present Screen

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

5.12 DTC Lookup

DTC Lookup menus allows to request DTC definitions stored in the scan tool. To Look up DTCs:

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

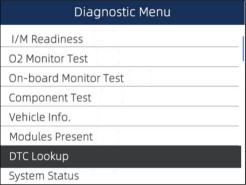


Figure 5-39 Sample Diagnostic Menu Screen

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

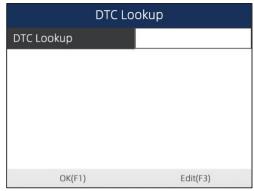


Figure 5-40 Sample DTC Lookup Screen

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.

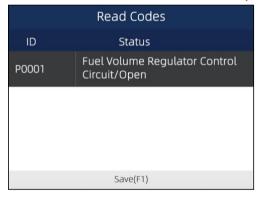


Figure 5-41 Sample Trouble Codes Screen

6 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
- Keypad Test
- Display Test
- About
- Shortcuts

6.1 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:

 Scroll with the arrow keys to highlight Language from Setup menu and press the ENTER key.

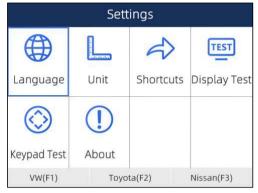


Figure 7-1 Sample Setup Screen

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 7-2 Sample Language Selection Screen

6.2 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 7-3 Sample Setup Screen

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

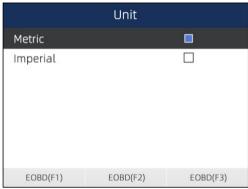


Figure 7-4 Sample Language Selection Screen

6.3 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.



Figure 7-5 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.

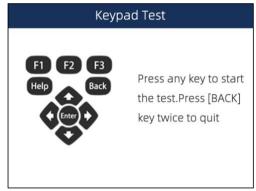


Figure 7-6 Sample Key Test Screen

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

6.4 LCD Keypad

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

To test the display:

 Scroll with the arrow keys to highlight LCD Test from Setup menu and press the ENTER key tostart test. Check if there are any missing spots in the LCD screen.



Figure 7-7 Sample LCD Test Screen

2. To guit the test, press the Back key.

6.5 Tool Information

Selecting About option opens a screen that show 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 7-8 Sample Setup screen

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

About Us		
Home Version	V1.01.005	
BOOT Version	V2.04.003	
Serial Number	N680P1e000003	
Copyright	Copyright(c)2018 Foxweli Technology Co Ltd. All rights reserved	
EOBD(F1)	EOBD(F2)	EOBD(F3)

Figure 7-9 Sample Tool Information Screen

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

6.6 Configure Shortcut Keys

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

To assign a function to a shortcut button:

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



Figure 7-10 Sample Setup screen

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

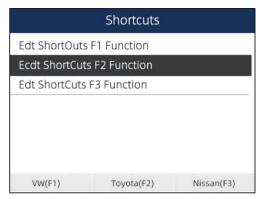


Figure 7-11 Sample Short Cuts Screen

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.

Vehicle		
ABABTH	ALFA	ASTONMARTIN
AUDO	BMW	BRILBMW
Bentley	Bugatti	CHRYSLER
DACIA	DAEWOO	Daihatsu
EOBD(F1)	EOBD(F2)	EOBD(F3)

Figure 7-12 Sample Short Cuts Screen

4. Press any key to exit and return.