VXDAS NT510

OBD2 & EOBD Scan Tool

User's Manual

CONTENTS

1. Safety Precautions and Warnings

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

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

2.General Introduction

2.1 On-Board Diagnostics(OBD)II

The first generation of On-Board Diagnostics(called OBD I)was developed by the California Air Resources Board (ARB) and implemented in 1988 to monitor

some of the emission control components on vehicles. As technology evolved and the desire to improve the On–Board Diagnostic system increased, a new genera–tion of On–Board Diagnostic system was developed. This second generation of On–Board Diagnostic regula–tions is called "OBDII".

The OBD II system is designed to monitor emission control systems and key engine components by per–forming either continuous or periodic tests of specific components and vehicle conditions. When a problem is detected, the OBD II system turns on a warning lamp (MIL) on the vehicle instrument panel to alert the driver typically by the phrase of "Check Engine" or "Service Engine Soon". The system will also store important information about the detected malfunction so that a technician can accurately find and fix the problem. Here below follow three pieces of such valuable information:

1) Whether the Malfunction Indicator Light (MIL)is commanded 'on' or 'off';

2) Which, if any, Diagnostic Trouble Codes (DTCs) are stored

3) Readiness Monitor status.

2.2 Diagnostic Trouble Codes (DTCs)

OBD II Diagnostic Trouble Codes are codes that are stored by the on–board computer diagnostic system in response to a problem found in the vehicle. These codes identify a particular problem area and are intend–ed to provide you with a guide as to where a fault might be occurring within a vehicle.

There are three types of DTCs:

1. **Pending** – When a fault condition is identified during a Drive Cycle, but does not meet enough criteria to activate the MIL.

If the fault condition occurs during two consecutive Drive Cycles, it will turn into a Stored DTC and the MIL will activate.

2. **Stored**–A DTC is stored when a fault condition has occurred that meets enough criteria to activate the MIL.

3. **Permanent**–A stored DTC that can only be cleared by the OBDII system,after repairs are made,and a set number of Driving Cycles have been completed.

OBD II Diagnostic Trouble Codes consists of a five–digit alphanumeric code. The first character, a letter, identifies which control system sets the code. The other four characters, all numbers, provide additional information on where the DTC originated and the operating conditions that caused it to set. Here below is an example to illustrate the structure of the digits:

DTC Example
P 0 2 0 2

P––Systems: B=Body C= Chassis P=Powertrain U=–Network

0––Code Type Generic(SAE): P0, P2, P34–P39; B0, B3; C0, C3; U0, U3 Manufacturer Specific: P1, P30–P33; B1, B2; C1, C2; U1, U2

2––Sub–systems: 1=Fuel and Air Metering 2=Fuel and Air Metering 3=Ignition System or Engine Misfire 4=Auxiliary Emission Controls 5=Vehicle Speed Control and Idle Controls 6=Computer Output Circuits 7=Transmission Controls   8=Transmission Controls

02––Identifying specific malfunction section of the systems

2.3 Location of the Data Link Connector (DLC)

The DLC (Data Link Connector or Diagnostic Link Con–nector) is the standardized 16–cavity connector where diagnostic scan tools Interface with the vehicle's on–board computer. The DLC is usually located 12 inches from the center of the instrument panel (dash), under or around the driver's side for most vehicles. If Data Link Connector is not located under dashboard. a label should be there telling location. For some Asian and European vehicles, the DLC is located behind the ashtray and the ashtray must be removed to access the connector. If the DLC cannot be found, refer to the vehicle's service manual for the location.

2.4 OBD II Readiness Monitors

An important part of a vehicle's OBD II system is the Readiness Monitors, which are indicators used to find out if all of the emissions components have been evalu–ated by the OBD II system. They are running periodic tests on specific systems and components to ensure that they are performing within allowable limits.

Currently, there are eleven OBD II Readiness Moni–tors(or I/M Monitors) defined by the U.S. Environmental Protection Agency(EPA). Not all monitors are supported by all vehicles and the exact number of monitors in any vehicle depends on the motor vehicle manufacturer's emissions control strategy.

Continuous Monitors––Some of the vehicle components or systems are continuously tested by the vehicles OBD II system, while others are tested only under specific

vehicle operating conditions. The continuously moni–
tored components listed below are always ready:

1) Misfire

2) Fuel System

3) Comprehensive Components(CCM)

Once the vehicle is running, the OBD ll system is con–
tinuously checking the above components, monitoring
key engine sensors, watching for engine misfire, and
monitoring fuel demands.

Non–Continuous Monitors––Unlike the continuous
monitors, many emissions and engine system compo–
nents require the vehicle to be operated under specific
conditions before the monitor is ready. These monitors
are termed non–continuous monitors. For different
ignition type engines, the available monitors are differ–
ent too.

The following monitors are to be used for spark ignition
engines only:

1) EGR System   2) O2 Sensor   3) Catalyst

4) Evaporative System   5) O2 Sensor Heater   6) Secondary air

7) Heated Catalyst

The following monitors are to be used for compression
ignition engines only:

1) EGR System

2) NMHC Catalyst

3) NOx aftertreatment

4) Boost pressure system

5) Exhaust gas sensor

6) PM filter

2.5 OBD II Monitor Readiness Status

OBD II systems must indicate whether or not the vehi-cle's PCM's monitor system has completed testing on each component. Components that have been tested will be reported as"Ready",or "Complete", meaning they have been tested by the OBD II system. The purpose of recording readiness status is to allow inspectors to determine if the vehicle's OBD II system has tested all the components and/or systems.

The power-train control module (PCM)sets a monitor to "Ready"or "Complete"after an appropriate drive cycle has been performed. The drive cycle that enables a monitor and sets readiness codes to"Ready" varies for each individual monitor. Once a monitor is set as "Ready" or "Complete", it will remain in this state. A number of factors, including erasing of diagnostic trou-ble codes (DTCs) with a scan tool or a disconnected battery, can result in Readiness Monitors being set to"Not Ready. Since the three continuous monitors are constantly evaluating, they will be reported as"Ready "all of the time. If testing of a particular supported non-continuous monitor has not been completed, the monitor status will be reported as "Not Complete"or "Not Ready".

In order for the OBD monitor system to become ready, the vehicle should be driven under a variety of normal operating conditions. These operating conditions may include a mix of highway driving and stop and go, city type driving, and at least one overnight-off period. For specific information on getting your vehicles OBD mon-itor system ready, please consult your vehicle owner's manual.

2.6 OBD II Definitions

EOBD: European On–Board Diagnostics. Essentially the same as OBD ll, with the same Data Link Connector and Communication Protocols.

Communication Protocol: Allows different systems and sensors in a vehicle to communicate.

There are currently five Protocols:

CAN Bus
J1850 VPW
ISO9141–2
J1850 PWM
ISO 14230 KWP

CAN: Controller Area Network. Message–based Com–munication Protocol serial bus.

Power–train Control Module (PCM): OBD II terminology for the on–board computer that controls engine and drive train.

DLC: Data Link Connector. The 16–cavity connector on the vehicle that allows communication between the computer system and the scan tool.

DTC: Diagnostic Trouble Code. A code stored in the computer systems memory, which helps to

identify the fault condition that is causing the MIL to activate.

Drive Cycle: A set of driving procedures that when met, provide the Enabling Criteria for the I/M Monitors to run and complete their diagnostic tests.

Enabling Criteria: Operating conditions that must occur during a Drive Cycle to cause the I/M Monitors to run and complete their diagnostic tests.

MIL: Malfunction Indicator Lamp. The vehicle's "Check Engine" warning light that activates when a DTC is stored.

Freeze Frame Data: Operating conditions that are stored when a DTC is stored.

PID– Parameter Identification Data: Data returned by the vehicle's Control Modules to the Scan Tool.

2.7 OBD II Diagnostic Test Modes

Here is a basic introduction to the OBD II communica–tion protocol.

Note: Not all Modes are supported by all vehicles.

Mode $01–Identifies the Power–train information and shows current data available to the scan tool.

Mode $02–Request Powertrain Freeze Frame Data.

Mode $03–Request Emission–related stored DTCs.

Mode $04–Clear/reset Emission–related diagnostic information.

Mode $05–Request Oxygen Sensor Monitoring Test Results(2007 and older vehicles only)

Mode $06–Non–continuously Monitored System test results.

Mode $07–Request for DTCs (pending) from Continu–ously Monitored Systems after a single driving cycle has been performed to determine if repair has fixed a prob–lem.
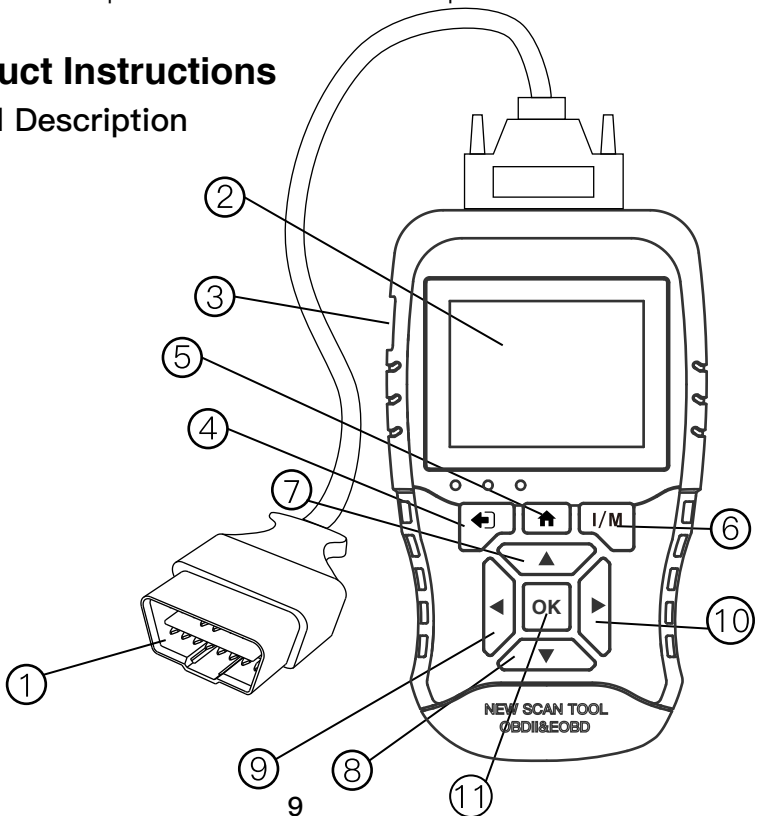
Mode $08–Request control of on–Board system, test or component.

Mode $09–Request vehicle information.

Mode $0A–Request Emission–related permanent DTCs.

3.Product Instructions

3.1 Tool Description

1. OBD II Cable: Connects the Scan Tool to the vehi–cles DLC.

2. LCD Screen: Indicates test results.

3. USB Connector: Connects the Scan Tool to a PC for updating software and printing.

4. ESC Button: Returns to the previous screen. Checks Datastream after selecting specific data items.

5. Home Button: Moves to main function interface.

6. I/M Button: One–key I/M Readiness operations.

7. Up Button: Moves up through menu and submenus. Moves to previous screen if information covers more than one screen.

8. Down Button: Moves down through menu and sub–menus. Moves to next screen if information covers more than one screen.

9. Left Button: Moves to previous screen if information covers more than one screen.

10. Right Button: Moves to next screen if information covers more than one screen.

11. OK Button: Conforms a selection from a menu.

3.2 Specifications

Display Screen	TFT Color (320*240)
Operating Temperature	0 to 60℃ (32 to 140℉)
Storage Temperature	–20 to 70℃ (–4to 158℉)
Power	8V to 18V (power provided by vehicle battery)

3.3 Accessories Included

1. User's Manual–– Instructions on tool operations.

2. OBDII cable–– Provides power to tool and communi–cation between tool and vehicle.

3. USB cable –– Used to print retrieved data and update software.

4. Protective ABS Case––A ABS case to store the tool when not in use.

3.4 Keyboard

No solvents such as alcohol are allowed to clean the keypad or display. Use a mild nonabrasive detergent and a soft cotton cloth. Do not soak the keypad as the keypad is not waterproof.

3.5 Power

The scan tool is powered via the vehicle Data Link Connector (DLC).

Just follow the steps below to turn on the scan tool:

1.Connect the OBD II Cable to scan tool.

2.Find DLC on vehicle.

3.Plug OBD II cable to the vehicle's DLC.

Power up the scan tool, and wait for the Main Screen to appear.

3.6 System Setup

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

1.Language: Selects the desired language.

2.Unit of measure: Sets the unit of measure to English or Metric.

3.Beep Set: Turns on/off beep.

4.Key Test: Checks if the keyboard is working properly.

5.LCD Test: Checks if the LCD display is working properly.

6.Screen Test：Checks if the screen is working properly.

ⓒ	Tool Setup	
Language		
Unit Of Measure		
Keyboard sound		
Device Self-Test		>
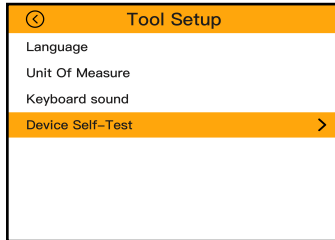
To enter the Setup menu

From the Main Screen: Use LEFT/RIGHT scroll button to select Setting, and press the OK button. Following the instructions to do adjustments and settings could make your diagnosis more conveniently and easily.

Language setup

English is the default language.

1) Use the UP/DOWN scroll button to select the desired language and press the OK button to save your selec-tion and return to previous screen.

Unit of Measure

Metric is the default measurement unit.

1) From Unit of Measure screen, use the OK button to select the desired unit of measurement.

Keyboard Sound

The default setting is Beep On.

1) From Beep Set menu, use the OK button to select ON or OFF to turn on/off the beep.

Key Test

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

1) Press any key to start test. When you press a key, the name of corresponding key will show on the screen. Otherwise, the key is not functioning properly.

2) Double press ESC to return to previous menu.

LCD Test

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

1) Look for missing spots in the red, green, yellow LCD display.

2) When completed, press the ESC button to exit.

3.7 Vehicle Coverage

The Scan Tool is specially designed to work with all OBD II compliant vehicles, including those equipped with next–generation protocol– Control Area Network (CAN).

It is required by EPA that all 1996 and newer vehicles (cars and light trucks) sold in the United States must be OBD II compliant and this includes all Domestic. Asian and European vehicles.

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

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

3.8 Product Troubleshooting

This part describes problems that you may encounter while using the scan tool.

Problem	Possible Cause	Likely Solutions
Scan Tool doesn't power up	1.OBDII Cable connector not connected securely. 2. Vehicle's DLC pins are bent or broken. 3. Vehicle's battery is bad.	1.Verify that the Scan Tool's OBDII Cable connector is securely connected to the vehicle's DLC. 2.Check if the DLC pins are bent or broken.If bent or broken,have a certified technician repair the DLC. 3.Make sure vehicle's battery it providing at least 8V.

Problem	Possible Cause	Likely Solutions
Vehicle Linking Error	1. Vehicle is not OBD compliant. 2. Ignition is off. 3. Bad connection.	1.Verify that the vehicle is OBDII compliant. 2.Verify that the ignition is ON. 3.Reset the tool by turning the ignition off,waiting 10 seconds,then turning the ignition back on.
Scan Tool Freezes	Scan Tool or vehicle's computer system not responding.	Reset the Scan Tool by turning the ignition off, waiting 10 seconds,then turning the ignition back on.

4. OBDII Diagnosis

The OBD ll Diagnostics function is a fast–access option that allows you to carry out a quick test on the engine system of OBD ll. When more than one vehicle control module is detected by the scan tool, you will be prompted to select the module where the data may be retrieved. The most often to be selected are the Pow–er–train Control Module [PCM] and Transmission Con–trol Module [TCM].

CAUTION: Don't connect or disconnect any test equip–ment with ignition on or engine running.

1) Turn the ignition off.

2) Locate the vehicle's 16–pin Data Link Connec–tor(DLC).

3) Plug the scan tool cable connector into the vehicle's DLC.

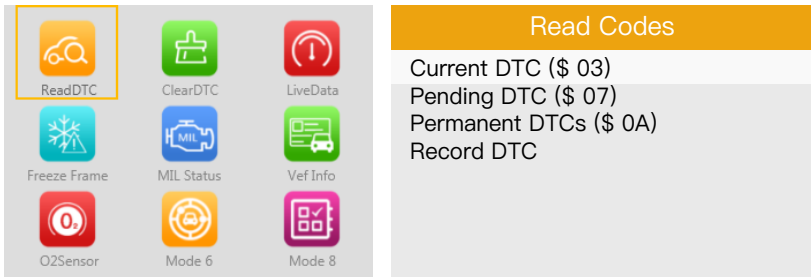4) Turn the ignition on. Engine can be off or running.

5) Turn on the scan tool. Select OBDII from the Main Screen.

6) Press the OK button to wait for the Menu to appear. A sequence of messages displaying the OBDII protocols will be observed on the display until the vehicle protocol is detected.

4.1 Read DTC

1.Use UP/DOWN scroll button to select Read DTC from Main Menu and press OK button.

2.Use the UP/DOWN scroll button to select Stored Codes, Pending Codes or Permanent Codes from the Read Codes menu and press the OK button.

ReadDTC	ClearDTC	LiveData
Freeze Frame	MIL Status	Vef Info
O2Sensor	Mode 6	Mode 8

Read Codes

Current DTC ($ 03)
Pending DTC ($ 07)
Permanent DTCs ($ 0A)
Record DTC

If there is not any Diagnostic Trouble Code, the display indicates "No(pending) codes are stored in the module!" Wait a few seconds or press any key to return to previous screen.

NOTE: Permanent Codes function is available for merely vehicles supporting the CAN protocols.

3.View DTCs and their definitions on screen

4.If more than one DTC is found, use the UP/DOWN scroll button to check all the codes.

Read Codes	
P0010	1/11
A Camshaft Position Actuator Circuit/Open Bank 1	
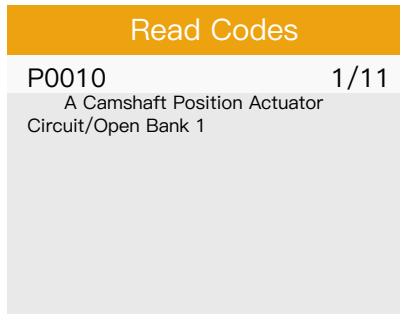
If retrieved DTCs contain any manufacturer specific or enhanced codes, a"The vehicle's code is defined by the manufacturer, please enter to select the manufactur– er."message comes up prompting you to select vehicle manufacturer to view DTC definitions. Use UP/DOWN scroll button to select manufacturer and then press OK button to confirm.

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

4.2 Clear DTC

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

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

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

1.Use the UP/DOWN scroll buttons to select Clear DTC from Diagnostics Menu and press the OK button.

2.Choose whether to erase codes or not.

4.3 Live Data

In this function, you can not only read the live data but also record data for later review.

Viewing Data: allows viewing of live or real time PID data of vehicles computer module(s).

To view live data, use the UP/DOWN scroll button to select Live Data from Diagnostic Menu and press the OK button.

View All Items	
Fuel system 1 status	–––
Fuel system 2 status	CL
Calculated LOAD Value	96.1%
Engine Coolant Temperature	118°F
Short Term Fuel Trim– Bank 1	–21.1%
< 1/18 >	

A.View All Items

1.To view complete set of data, use UP/DOWN scroll button to select View All Items from Live Data menu and press the OK button.

2.View live PIDs on the screen. Use the UP/DOWN or Left/Right scroll button for more PIDs if additional in formation is available on more than one page.
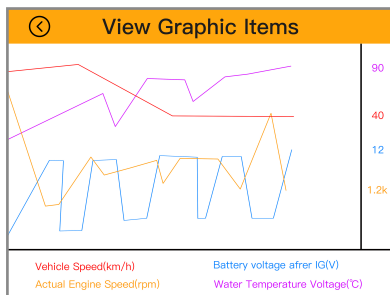
Select Items	
[ ]	Fuel system 1 status
[ ]	Fuel system 2 status
[ ]	Calculated LOAD Value
[ ]	Engine Coolant Temperature
[ ]	Short Term Fuel Trim– Bank 1
< 1/18 >	

Select Items	
[√]	Fuel system 1 status
[√]	Fuel system 2 status
[√]	Calculated LOAD Value
[√]	Engine Coolant Temperature
[√]	Short Term Fuel Trim– Bank 1
< 1/18 >	

B. Select Items

To view customized PID data, click Select Items from Live Data menu and press the OK button.

1.Use the UP/DOWN scroll button to get the desired items and click OK button to confirm.

2.Press ESC to view the selected PIDs.

C. View Graphic Items

1. Use the UP/DOWN scroll button to get the desired items and click OK button to confirm. 见图5.15

2. Press ESC to view the selected PIDs.

NOTE: Merge Graph can be used to compare four related parameters in graphic mode.

Recording Data

Data Stream
View All Items
Select Items
View Graphic Items
Record All
Record Select

A. Record All

1. Use UP/DOWN scroll button to select Record All from Live Data menu and press the OK button.

2. The scan tool will start timing to record retrieved live data.

3. Press ESC to stop recording.

4. You may review the recorded data in Review func–tion.

Selected Datastream	
DTC that caused required freeze frame data storage	P0113
Fuel system 1 status	---
Fuel system 2 status	CL
Calculated LOAD Valus	24.1%
Engine Coolant Temperature	194℉
< 1/17 >	

Select Datastream	
[ ]	Calcultated LOAD Value
[ ]	Engine Coolant Temperature
[ ]	Short Term Fuel Trim–Bank 1
[ ]	Long Term Fuel Trim–Bank 1
[ ]	Short Term Fuel Trim–Bank 2
< 1/16 >	

B. Record Select

1. Use UP/DOWN scroll button to select Record Select from Live Data menu and press the OK button.

2. Use the UP/DOWN scroll button to get the desired items,then press ESC, the scan tool will start timing to record selected live data.

3. Press ESC again to stop recording.

4. You may review the recorded data in Review func–tion.

4.4 Freeze Frame

Freeze Frame Data allows the technician to view the vehicle's operating parameters at the moment a DTC is detected. For example, the parameters may include engine speed (RPM), engine coolant temperature(ECT), or vehicle speed sensor (VSS)etc.

Freeze Frame	
P0103	>
P0013	
P3033	
P1023	
< 1/1 >	

Freeze Frame	
P0013	
Fuel system 2 status	CL
Calculated LOAD Value	57.6%
Engine Coolant Temperature	248°F
Short Term Fuel Tirm – Bank1	–21.1%
Long Term Fuel Tirm – Bank1	18.8%
Short Term Fuel Tirm – Bank2	68.8%
Long Term Fuel Tirm – Bank2	–68.0%
< 3/18 >	

1.Select Freeze Frame from Diagnostic Menu and press the OK button.

2.View data. If retrieved information covers more than one screen, use the DOWN scroll button as necessary, until all the data have been shown up.(Figure 5.20)

3.Select Save to record freeze frame.

4.5 I/M Readiness

I/M Readiness function is used to check the operations of the Emission System on OBD2 compliant vehicles. It is an excellent function to use prior to having a vehicle inspected for compliance to a state emissions program.

I/M Readiness			
MIL	🚗	IGN	Spark
DTC	14	Pd DTC	15
MIS	✔	EVAP	✖
FUE	✔	AIR	⊘
CCM	✔	O2S	✖
CAT	✖	HRT	✖
HCAT	⊘	EGR	⊘

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

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

A. Since DTCs Cleared – indicates status of the moni–tors since the DTCs are erased.

B. This Drive Cycle – indicates status of monitors since the beginning of the current drive cycle.

An I/M Readiness Status result of "NO" does not nec–essarily indicate that the vehicle being tested will fail the state I/M inspection. For some states, one or more

such monitors may be allowed to be "Not Ready" to pass the emissions inspection.

✔ –– Indicates that a particular monitor being checked has completed its diagnostic testing.

✘ –– Indicates that a particular monitor being checked has not completed its diagnostic testing.

⊘ –– The monitor is not supported on that vehicle.

1.Press I/M Readiness button to enter.

2.Wait a few seconds while the scan tool validates the PID MAP.

3.If the vehicle supports both types of tests, then both types will be shown on the screen for selection.

4.Use the UP/DOWN scroll button, as necessary, to view the status of the MIL light ("ON" or "OFF") and the following monitors:

For spark ignition engines:
• MIS – Misfire Monitor
• FUEL –– Fuel System Monitor
• CCM – Comprehensive Component Monitor
• EGR – EGR System Monitor
• O2S –– O2 Sensors Monitor
• CAT –– Catalyst Monitor
• EVAP –– Evaporative System Monitor
• HTR –– O2 Sensor Heater Monitor
• AIR –– Secondary Air Monitor
• HCAT –– Heated Catalyst Monitor

For compression ignition engines:

• MIS –– Misfire Monitor

• FUEL –– Fuel System Monitor

• CCM –– Comprehensive Component Monitor

• EGR – EGR System Monitor

• HCCAT –– NMHC Catalyst Monitor

• NCAT –– NOx Aftertreatment Monitor

• BP –– Boost Pressure System Monitor

• EGS –– Exhaust Gas Sensor Monitor

• PM –– PM Filter Monitor

4.6 Smog Check

The Smog Check allows checking the smog readiness status.

1.Select Smog from Diagnostic Menu and press OK button.

2.You can clearly see the status of the smog readiness.

4.7 MIL Status

The MIL Status allows checking the status of MIL and run time/ distance with Check Engine Light on, run time/distance since DTC cleared.

| Monitor Status	
MIL Status	OFF
DTCs in this ECU	0
Readiness Completed	1
Readiness Not Completed	0
Readiness Not Supported	9
Datastream Supported	21
Ignition	Spark
Protocol Type	VPW

1.Select MIL from Diagnostic Menu and press OK button.

2.Use the UP/DOWN scroll button to select the item you'd like to check.

4.8 O2 Sensor

OBD2 regulations set by SAE require that relevant vehicles monitor and tests on the oxygen (O2) sensors to identify problem related to fuel efficiency and vehicle emissions. These tests are not on–demand tests and they are done automatically when engine operating conditions are within specified limits. These test results are saved in the on–board computer's memory.

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

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

Select O2 Sensor
Bank 1–Sensor1
Bank 1–Sensor2
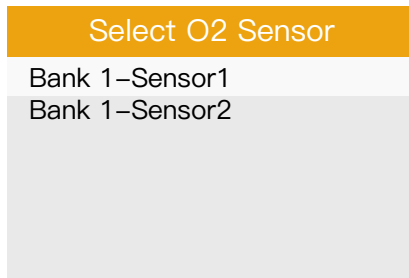
1.Use the UP/DOWN scroll button to select O2 sensor from O2 Sensor menu and press OK button.

2.Wait a few seconds while the scan tool validates the PID MAP.

If the vehicle does not support the mode, an advisory message will be displayed on the screen.

3.View test results of selected O2 sensor.

4.9 Mode 6

Mode 6 (On–Board Monitor Test) is useful after servic–ing or after erasing a vehicle's control module memory. The On–Board Monitor Test for non–CAN–equipped vehicles retrieves and displays test results for emis–sion–related power train components and systems that are not continuously monitored. The On–Board Monitor Test for CAN–equipped vehicles retrieves and displays test results for emission–related power train compo–nents and systems that are and are not continuously monitored. Test and components IDs are determined by the vehicle manufacturer.

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

On–Board Monitoring
Test $01 Data
Test $02 Data
Test $04 Data
Test $06 Data
Test $08 Data

| Test $01 Data	
Component ID	$07
Limit Type	Max
Test Value	0
Minimum Limit	---
Maximum Limit	128
Status	Pass

1.From Mode 6 menu, use the UP/DOWN scroll button to select a test to view and press the OK button.

2.Wait a few seconds while the scan tool validates the PID MAP.

3.The scan tool will prompt you to select the vehicle make. (If you have selected the vehicle before, the Vehicle Manufacturer screen would not appear again)

4.After you select the vehicle manufacturer, the scan tool shows the On–Board Monitors tests for specific monitoring systems.

If the vehicle under test does not support the mode, an advisory message will be displayed on the screen.

4.10 Mode 8

Mode 8 (The Component Test) function allows initiating a leak test for the vehicle's EVAP system. The scan tool itself does not perform the leak test, but commands the vehicle's on–board computer to start the test. Different vehicle manufacturers might have different criteria and methods for stopping the test once it has been started. Before starting the Component Test, refer to the vehicle service manual for instructions to stop the test.

Evap System(mode $8)

Evaporative system leak test passed
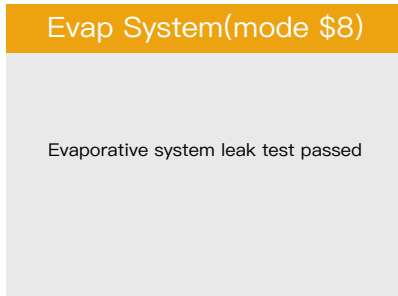
1.Select Mode 8 from Diagnostic Menu and press the OK button.

2.If the test has been initiated by the vehicle, a confir–mation message will be displayed on the screen.

3.Some vehicles do not allow scan tools to control vehicle systems or components. If the vehicle under test does not support the EVAP Leak Test, an advisory message is displayed on the screen.

4.11 Viewing Vehicle Information

The Vehicle Info. function enables retrieval of Vehicle Identification No. (VIN), Calibration ID Nos.(CINs), Calibration Verification Nos.(CVNs) .

Vehicle Information
Vehicle Identification Number(VIN): LFV3A24G9D3020130
Calibration Identifications(CID)： CID1: JMB*36761500
Calibration Verification Numbers(CVN): CVN1: 4A4D422A CVN2: 33363736

1.Select Vehicle Info. from the Diagnostic Menu and press OK button.

2.View retrieved vehicle information on screen.

4.12 Fuel Analysis

The Fuel Analysis function allows viewing the fuel economy of the vehicle.

Fuel Economy	
Instant fuel consumption	519.9L/ 100KM
Idle speed fuel consumption	–––
Vehicle speed	26MPH
Air Flow Rate from Mass Air Flow Sensor	86.71b/min
Engine RPM	2749/min
< 1/17 >	

1.Select Fuel from Diagnostic Menu and press OK button.

2. Use the UP/DOWN scroll button to select the item you'd like to check if there is more than one page.

4.13 Core Analysis

The Core Analysis function allows viewing the perfor–mance of the vehicle.

Performance	
Engine RPM	2749/min
Vehicle Speed	26mph
Engine Coolant Temperature	419℉
Intake Air Temperature	32℉
Fuel Rail Pressure	0.0psi
< 1/17 >	

1.Select Core from Diagnostic Menu and press OK button.

2. Use the UP/DOWN scroll button to select the item you'd like to check if there is more than one page.

4.14 Engine Analysis

The Engine Analysis function allows viewing the engine data of the vehicle.

1. Select Engine from Diagnostic Menu and press OK button.

2. Use the UP/DOWN scroll button to select the item you'd like to check if there is more than one page.

4.15 Battery Test

The Battery Test function allows viewing the status and the voltage of the vehicle.

Battery

Battery Volt

11.6V

Engine: ON

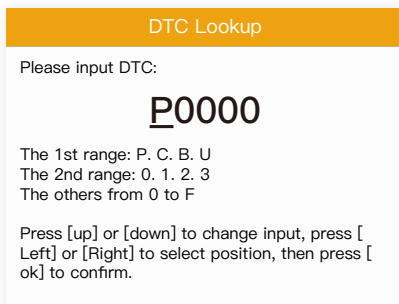Normal battery voltage, good battery status.
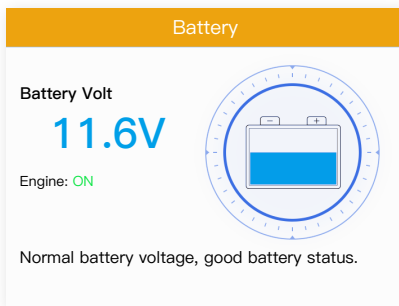
1.Select Battery from Diagnostic Menu and press OK button.

2.You can clearly see the status and the voltage of the vehicle.

4.16 DTC Query

The DTC Query function allows user to search defini-tions of DTC stored in built-in DTC library.

DTC Lookup

Please input DTC:

P0000

The 1st range: P. C. B. U
The 2nd range: 0. 1. 2. 3
The others from 0 to F

Press [up] or [down] to change input, press [Left] or [Right] to select position, then press [ok] to confirm.

1.Use the UP/DOWN scroll button to select DTC Query from Diagnostic Menu and press OK button.

2.Wait for the scan tool to display the DTC Query screen.

3.Press UP/DOWN to change input, press LEFT/RIGHT to select position. Then press OK button to confirm and the scan tool will display this code's definition on screen.

If definition could not be found(SAE or Manufacturer Specific), the scan tool displays"The fault code is not found in the database"

4.Press ESC button to return to previous menu.

5. Review and Print Data

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

Print Data
Print All
Print Data Stream
Print Freeze Data
Print DTC
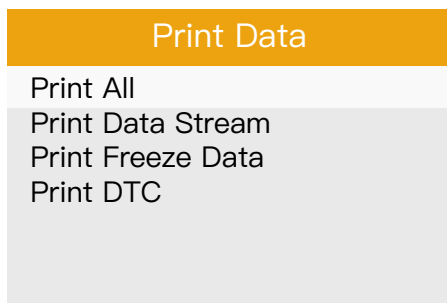
5.1 Reviewing Data

1. Select Review from Main Screen, and press the OK button.

2. Use the UP/DOWN scroll button to select the item you'd like to review. Then press OK button to continue.

3. Review selected data on screen.

If no data from previously tested vehicle is recorded, a message "No data available!" shows on the screen.

4. If you'd like to delete the saved data, select Review from Main Scree, and then choose the one you want to delete and press OK.

5.2 Printing Data

The Print Data function allows printing out diagnostic data recorded by the scan tool by connecting the scan tool to a PC or laptop with the USB cable supplied. To print out retrieved data, you need the following tools:

NT510 Scan tool
A PC or laptop with USB ports
A USB cable

1.Download the applications in our website: www.VX–DAS.com or our distributors' site.
2.Connect the scanner to computer with the USB cable supplied.
3.Run Printer software on computer.
4.Select Print function in Main Screen of the scan tool. In Scan screen, select the files you want to print. Wait for the reviewing window to display , and then select Print function. The selected file will be uploaded to your computer.
5.The selected data will display on the textbox of Print–er. By selecting the function keys on the right , you are also allowed to edit, copy, and delete the data in the Printer window.

NOTE: The scan tool can only print text data even

6.Update and Warranty

6.1 Software Update

This function allows you to update the scan tool soft–ware through a computer.

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

1.Download the applications in our website: www.VX–DAS.com or our distributors' site.
2.Make sure that your computer is connected to the Internet.
3. Connect the scanner to computer with the USB cable supplied.
4. Run the update option in PC Suit software. Wait for the log in window to pop up.
5. In the Update window, select the items you want to install.

6.2 Limited One Year Warranty

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

1) The sole responsibility of Humzor under the Warranty is limited to either the repair or, at the option of VXDAS replacement of the scan tool at no charge with Proof of Purchase. The sales receipt may be used for this pur–pose.

2) This warranty does not apply to damages caused by improper use, accident, flood, lightning, or if the prod–uct was altered or repaired by anyone other than the Manufacturer's Service Center.

3) VXDAS shall not be liable for any incidental or con–sequential damages arising from the use, misuse, or mounting of the scan tool. Some states do not allow limitations on how long an implied warranty lasts, so the above limitations may not apply to you.

4) All information in this manual is based on the latest information available at the time of publication and no warranty can be made for its accuracy or completeness. VXDAS reserves the right to make changes at any time without notice.

6.3 Service Procedures

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

www. VXDAS.com.

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