

LAUNCH

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1. INTRODUCTION

Creader V+ is the next generation of vehicle [fault diagnosis tool](#) developed by Launch, especially for the DIY users and the servicemen of small service workshop. It supports read/clear DTCs and read datastream. With built-in help menus and code definitions, diagnosing and repairing that dreaded Check Engine Light is now easier than ever!

Moreover, Creader V+ also feature the following bi-directional "special tests": EVAP, O2 Sensor, I/M Readiness, MIL Status, VIN Info, and On-board monitors testing.

It can be connected to PC through the USB cable for upgrade to keep updated with the latest software version.

Notice: Creader V+ may automatically reset while being disturbed by strong static electricity. THIS IS A NORMAL REACTION.

2. General Information-About OBDII/EOBD

2.1 On-Board Diagnostics (OBD) II

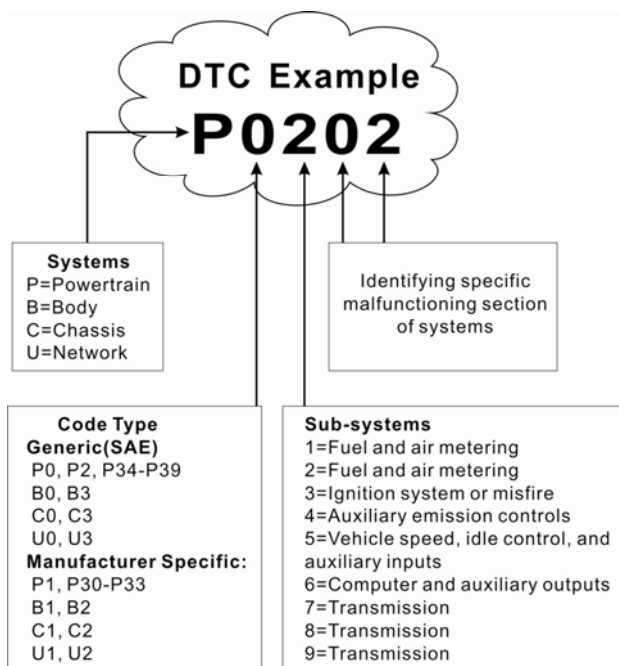
The first generation of On-Board Diagnostics (called OBD I) was developed by the California Air Resources Board (ARB) and implemented in 1988 to monitor some of the emission control components on vehicles. As technology evolved and the desire to improve the On-Board Diagnostic system increased, a new generation of On-Board Diagnostic system was developed. This second generation of On-Board Diagnostic regulations is called "OBD II".

The OBD II system is designed to monitor emission control systems and key engine components by performing 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.**

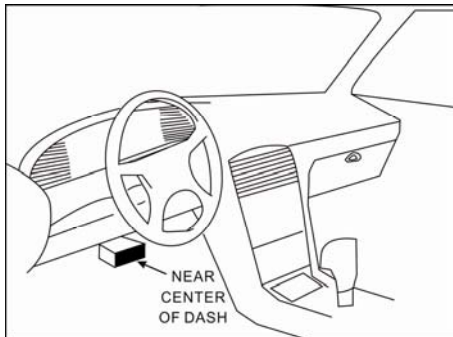
2.2 Diagnostic Trouble Codes (DTCs)

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 intended to provide you with a guide as to where a fault might be occurring within a vehicle. OBD II Diagnostic Trouble Codes consist of a five-digit alphanumeric code. The first character, a letter, identifies which control system sets the code. The second character, a number, 0-3; other three characters, a hex character, 0-9 or A-F 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:



2.3 Location of the Data Link Connector (DLC)

The DLC (Data Link Connector or Diagnostic Link Connector) is the standardized 16-cavity connector where diagnostic code readers 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 evaluated 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 Monitors (or I/M Monitors) defined by the U.S. Environmental Protection Agency (EPA). Not all monitors are supported in every 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 vehicle's OBD II system, while others are tested only under specific vehicle operating conditions. The continuously monitored components listed below are always ready:

1) Misfire

- 2) **Fuel System**
- 3) **Comprehensive Components (CCM)**

Once the vehicle is running, the OBD II system is continuously 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 components require the vehicle to be operated under specific conditions before the monitor is ready. These monitors are termed non-continuous monitors and are listed below:

- 1) **EGR System**
- 2) **O2 Sensors**
- 3) **Catalyst**
- 4) **Evaporative System**
- 5) **O2 Sensor Heater**
- 6) **Secondary air Injection**
- 7) **Heated Catalyst**
- 8) **A/C system**

2.5 OBD II Monitor Readiness Status

OBD II systems must indicate whether or not the vehicle'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 powertrain 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 trouble codes (DTCs) with a code reader 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 vehicle's OBD monitor system ready, please consult your vehicle owner's manual.

2.6 OBD II Definitions

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

Malfunction Indicator Light (MIL) -- Malfunction Indicator Light (Service Engine Soon, Check Engine) is a term used for the light on the instrument panel. It is to alert the driver and/or the repair technician that there is a problem with one or more of vehicle's systems and may cause emissions to exceed federal standards. If the MIL illuminates with a steady light, it indicates that a problem has been detected and the vehicle should be serviced as soon as possible. Under certain conditions, the dashboard light will blink or flash. This indicates a severe problem and flashing is intended to discourage vehicle operation. The vehicle onboard diagnostic system cannot turn the MIL off until the necessary repairs are completed or the condition no longer exists.

DTC -- Diagnostic Trouble Codes (DTC) that identifies which section of the emission control system has malfunctioned.

Enabling Criteria -- Also termed Enabling Conditions. They are the vehicle-specific events or conditions that must occur within the engine before the various monitors will set, or run. Some monitors require the vehicle to follow a prescribed "drive cycle" routine as part of the enabling criteria. Drive cycles vary among vehicles and for each monitor in any particular vehicle. Please refer to the vehicle's factory service manual for specific enabling procedures.

OBD II Drive Cycle -- A specific mode of vehicle operation that provides conditions required to set all the readiness monitors applicable to the vehicle to the "ready" condition. The purpose of completing an OBD II drive cycle is to force the vehicle to run its onboard diagnostics. Some form of a drive cycle needs to be performed after DTCs have been erased from the PCM's memory or after the battery has been disconnected. Running through a vehicle's complete drive cycle will "set" the readiness monitors so that future faults can be detected. Drive cycles vary depending on the vehicle and the monitor that needs to be reset. For vehicle specific drive cycle, consult the service manual.

Freeze Frame Data -- When an emissions related fault occurs, the OBD II system not only sets a code but also records a snapshot of the vehicle operating

parameters to help in identifying the problem. This set of values is referred to as Freeze Frame Data and may include important engine parameters such as engine RPM, vehicle speed, air flow, engine load, fuel pressure, fuel trim value, engine coolant temperature, ignition timing advance, or closed loop status.

Fuel Trim (FT) - Feedback adjustments to the base fuel schedule. Short-term fuel trim refers to dynamic or instantaneous adjustments. Long-term fuel trim refers to much more gradual adjustments to the fuel calibration schedule than short-term trim adjustments. These long-term adjustments compensate for vehicle differences and gradual changes that occur over time.

3. Product Descriptions

3.1 Outline of Creader V+



Figure 3-1

No.	Name	Notes
1	Cable with OBD II CONNECTOR	Connects the Creader V+ to the vehicle's Data Link Connector (DLC).
2	RED LED INDICATOR LAMP	DTC indicator; when confirmed or pending DTCs are found, the red indicator lamp will light up.

3	LCD DISPLAY	Indicates test results.
4	EXIT BUTTON	Returns to previous menu.
5	UP BUTTON	Move cursor up for selection.
6	ENTER BUTTON	Confirms a selection (or action) from a menu list.
7	RIGHT BUTTON	Move cursor right for selection; Or turn page down when more than one page is displayed.
8	DOWN BUTTON	Move cursor down for selection.
9	LEFT BUTTON	Move cursor left for selection; Or turn page up when more than one page is displayed.
10	USB PORT	Connects to computer to update the Creader V+ online.

3.2 Specifications

- 1) Screen: 2.4" TFT, 176*220 dots LCD display
- 2) Input voltage range: 9 ~ 18V
- 3) Operating temperature: 32°F~122°F / 0°C~50°C
- 4) Storage temperature: -4°F~158°F / -20°C ~70°C @ RH60%
- 5) Outline dimension: 120*75*20 mm (L x W x H)
- 6) Weight : <17.6 oz (500g)

3.3 Accessories

- 1) User's Manual -- Instructions on tool operations
- 2) USB cable -- Connect to a computer for upgrading online

3.4 Power supply

The power of the Creader V+ is provided via the vehicle Data Link Connector (DLC). Follow the steps below to power it up:

- 1) Find DLC on vehicle

A plastic DLC cover may be found for some vehicles and you need to remove it before plugging the OBDII cable.

- 2) Plug the connector at the end of OBD II cable to the vehicle's DLC.

3.5 Tool Setup

Select [Tool Setup] in the Main Menu and press [], the screen will display the interface as shown below:



Figure 3-2

The Creader V+ allows you to make the following settings:

1) **Select language:** Selects desired language.

Choose [Language] and press [], the screen will display the interface as shown below:



Figure 3-3

You can press [] [] key to select any language and press [] to confirm. The system will convert to the chosen language interface at once.

2) **Set measurement unit:** allows you to define the measurement unit.

Choose [Unit of Measure] and press [], the screen will display the interface as shown below:

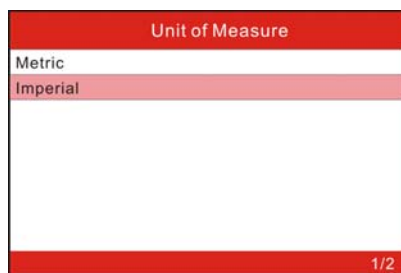


Figure 3-3

Use the [▲] [▼] key to select the desired one and press [↵] to save your change.

3.6 Vehicle Coverage

The Creader V+ is specially designed to work with all OBD II compliant vehicles, including 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 American, 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 vehicles. If the vehicle is OBD II compliant, the label will designate "OBD II Certified". Additionally, Government regulations mandate that all OBD II compliant vehicles must have a "common" sixteen-pin Data Link Connector (DLC).

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

4. Operations

4.1 Connection

- 1) Turn the ignition off.
- 2) Locate the vehicle's 16-pin Data Link Connector (DLC).
- 3) Plug the OBDII cable into the vehicle's DLC.
- 4) Turn the ignition on. Engine can be off or running.
- 5) After finishing, press [**⬅**] button to enter **Main Menu** as following figure 4-1:

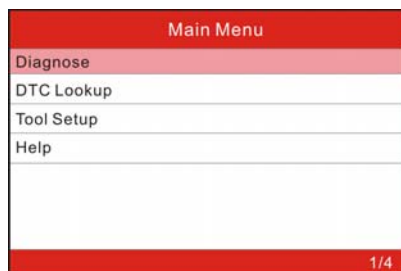


Figure 4-1

! *CAUTION: Don't connect or disconnect any test equipment with ignition on or engine running.*

4.2 Diagnose

Select [Diagnostic] in **Main Menu** and press [**↵**], the screen will display Monitor Status interface as following figure 4-2:

Monitor Status	
MIL Status	OFF
DTCs in this ECU	108
Readiness Completed	5
Readiness Not Completed	2
Readiness Not Supported	3
DataStream Supported	119
Ignition	Spark
Protocol Type	VPW

Figure 4-2

Press [↵] to enter the Diagnostic Menu, the screen will display as following figure 4-3:

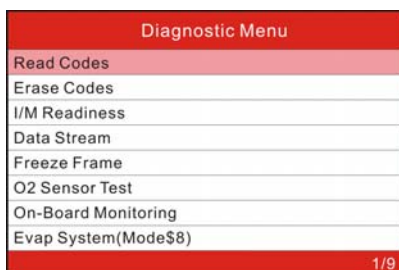


Figure 4-3

4.2.1 Read Codes

Select [Read Codes] and press [↵] in Diagnostic Menu. A screen similar to Figure 4-4 will pop up:

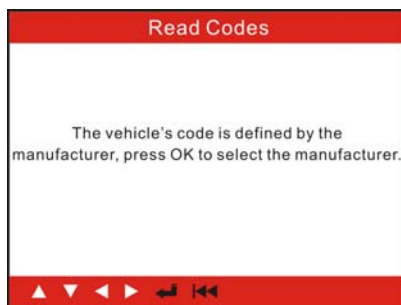


Figure 4-4

Press [↵] to enter to select the manufacturer. Figure 4-5 will be shown on the screen. Press [▲] / [▼] to select different items; press [▶] / [◀] to turn to next or previous page. After selecting the desired one, press [↵] to confirm.



Figure 4-5

If there are some codes, the screen will display the codes as shown below:

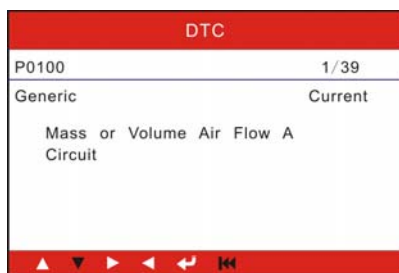


Figure 4-6

1/39 indicates there are 39 codes total and now P0100 is the first code to display.

The screen will also show the content of the code below the number of code. You can use [▼] key to view the next code.

After viewing all the codes, you can press [◀◀] to return to the Diagnostic Menu.

4.2.2 Erase Codes

Select [Erase Codes], the screen will display the interface as shown below:

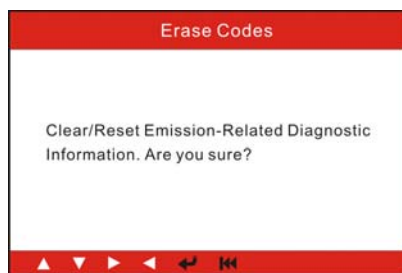



Figure 4-7

Press [] to erase DTC's, and the screen will display the interface as shown below:

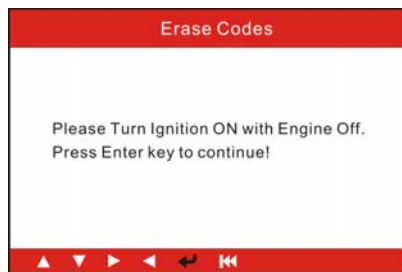



Figure 4-8

According to the above figure to press [] and the screen will display the interface as shown on the next page:

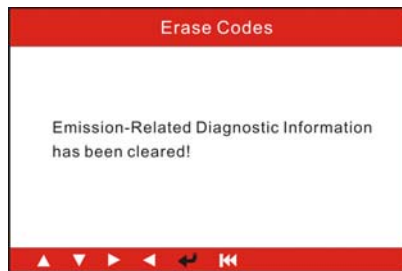



Figure 4-9


 **Notes:** After clearing, you should retrieve trouble codes once more or turn ignition on and retrieve codes again. If there are still some trouble codes in the system, please troubleshoot the code using a factory diagnosis guide, then clear the code and recheck.

4.2.3 I/M Readiness

I/M refers to Inspection and Maintenance that is legislated by the Government to meet federal clean-air standards. I/M Readiness indicates whether or not the various emissions-related systems on the vehicle are operating properly and are ready for Inspection and Maintenance testing.

The purpose of the I/M Readiness Monitor Status is to indicate which of the vehicle's Monitors have run and completed their diagnosis and testing (as described in Chapter 2.5), and which ones have not yet run and completed testing and diagnosis of their designated sections of the vehicle's emissions system.

The I/M Readiness Monitor Status function also can be used (after repair of a fault has been performed) to confirm that the repair has been performed correctly, and/or to check for Monitor Run Status.

Select [I/M Readiness] and press [, the screen will display the interface as shown below:

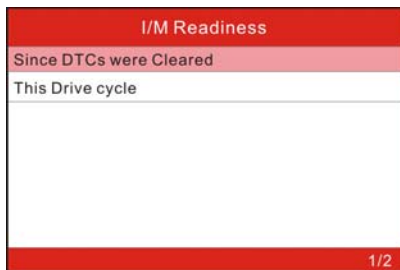





Figure 4-10

You can use []/ [] button to select and press [, the screen will display the interface as shown below:

I/M Readiness	
Misfire Monitor	N/A
Fuel system	OK
component monitor	INC
NMHC catalyst	N/A

1~4/9

Figure 4-11

You can use [▶]/ [◀] button to view other data of vehicle.

N/A means not available on this vehicle, **INC** means incomplete or not ready, **OK** means Completed or Monitor Ok.

Press [◀◀] to return to Diagnostic Menu.

4.2.4 Data Stream

Press [▲] [▼] button to select **Data Stream** in **Main Menu** interface and then press [↵] button to confirm, the screen will display the interface as shown below:

Datastream	
View All Items	
Select Itmes	
View Graphic Items	

1/3

Figure 4-12

Select [View All Items] and press [↵] button, the screen will display the interface as shown below:

Datastream	
Fuel system 1 status	---
Fuel system 2 status	---
Calculated LOAD Value	52.9%
Engine Coolant Temperature	54°C

1~4/87

Figure 4-13

You can use [▶] [◀] button to view other data streams.
Press [◀◀] to return to Diagnostic Menu.

Select [Select Items] in Data stream menu and press [↵], the screen will display the interface as shown below:

Select Datastream	
[]	All Datastream of Page
[]	Fuel system 1 status
[]	Fuel system 2 status
[]	Calculated LOAD Value

1~4/87

Figure 4-14

You can use [▲] / [▼] button to select data stream items, and press [▶] / [◀] button to turn page.

After selecting items, press [◀◀], the screen will display the selected datastream items.

To select all datastream of the current page, highlight the first line and then press [↵], √ will appear before all items. To deselect all, just press [↵] again.

If [View Graphic Items] is selected in Datastream menu and press [↵] to enter the graphic items selection screen.


Press [▲] / [▼] button to select single data stream items, and press [↵] button,

the screen will display the selected items of live graphic data.

Press [◀◀] to return to Diagnostic Menu.

4.2.5 View Freeze Frame

When an emission-related fault occurs, certain vehicle conditions are recorded by the on-board computer. This information is referred to as freeze frame data. Freeze Data is a snapshot of the operating conditions at the time of an emission-related fault.

 *Note: if DTCs were erased, Freeze Data may not be stored in vehicle memory depending on vehicle.*

Select [Freeze Frame] in main menu interface, the screen will display the interface as shown below:

Freeze Frame	
DTC that caused required freeze frame data storage	C2E3D
Fuel system 1 status	---
Fuel system 2 status	---
Calculated LOAD Value	30.2%
1~4/68	

Figure 4-15

You can use [▶] [◀] button to view the data.

Press [◀◀] to return to Diagnostic Menu.

4.2.6 O2 sensor test

The results of O2 sensor test are not live values but instead the results of the ECU's last O2 sensor test. For live O2 sensor readings, refer to any of the live sensor screens such as Graph Screen.

Not all test values are applicable to all vehicles. Therefore, the list generated will vary depending on vehicle. In addition, not all vehicles support the Oxygen Sensors screen.

For results of latest mandated on-board oxygen sensor monitoring test, see Figure 4-16 below:

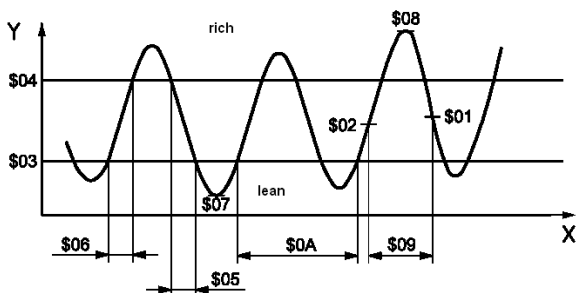


Figure 4-16

Select [O2 Sensor Test] in Diagnostic Menu and press [↵] and the screen will display as shown below:

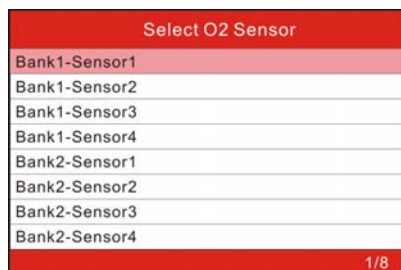


Figure 4-17

You can use [▲] [▼] button to select an item and press [↵], then follow the on-screen instructions to perform the test.

Press [⏪] to return to Diagnostic Menu.

4.2.7 On-board monitor test

This function can be utilized to read the results of on-board diagnostic monitoring tests for specific components/systems.

Select [On-board Monitoring] in main menu and press [↵] and the screen will display as shown below:

On-Board Monitoring	
Catalyst Monitor B1	
Catalyst Monitor B2	
Catalyst Monitor B3	
Catalyst Monitor B4	
EGR Monitor Bank 1	
EGR Monitor Bank 2	
EGR Monitor Bank 3	
1/41	

Figure 4-18

You can use [▲] [▼] button to select an item and press [↵], the screen will display as shown below:

Catalyst Monitor B1	
Component ID	\$01
Limit Type	Min&Max
Test Value	0.009
Minimum Limit	0.008
Maximum Limit	0.024
Status	Pass

Figure 4-19

Press [⏪] to return to Diagnostic Menu.

4.2.8 EVAP System Test

The EVAP test function lets you initiate a leak test for the vehicle's EVAP system. The Creader V+ does not perform the leak test, but signals to vehicle's on-board computer to initiate the test. Before using the system test function, refer to the vehicle's service repair manual to determine the procedures necessary to stop the test.

Select [EVAP System Test] and press [↵], the screen will display the relative information about EVAP system. Some vehicle manufacturers do not allow external devices to control vehicle system. If the car supports this function, it will display as below:



Figure 4-20

4.2.9 Vehicle Info

Select [Vehicle Info] and press [], the screen will display the information, such as VIN (Vehicle identification Number), CID (Calibration ID) and CVN (Calibration verification number), as shown below:



Figure 4-21

Press [] to return to Diagnostic Menu.

4.3 DTC Lookup

Select [Code Lookup] in the Main Menu and press [] and the screen will display the interface as shown below:

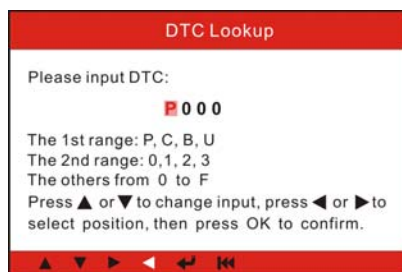


Figure 4-22

You can use [▲] [▼] key to change the first letter. It can be switched among “P”, “B”, “C” and “U”. Press [↵] to move the cursor to next, and then press [▶] [◀] key to input number. After you input the code number, press [↵] to view the definition of the code.

After viewing the definition, press [⏪] to return to the Main Menu.

4.5 Help

This function is used to view Tool Information, About OBD, and About Data stream.



Figure 4-23

Tool Information includes: software version, hardware version, serial number, supported, time and date.

About OBD: Relevant introductions information about OBD.

About Data stream: Relevant introductions information about Data stream.

5. Upgrading

Download the latest version of the Creader V+ upgrade package, and then decompress the software to local disk. Click it to run and install it until it is complete.

Connect the Creader V+ to computer through USB cable and run the Creader V+ Upgrade.exe, a screen similar to the following figure will appear:

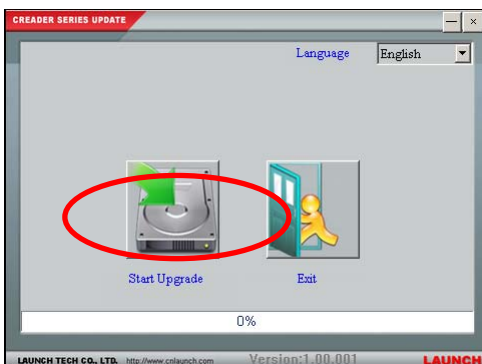


Figure 5-1

Select the language, and then click "Start Upgrade" when a message of upgrading succeed pops up, click "Exit", unplug USB cable to complete upgrade.

6 FAQ

Here we list some frequently asked questions and answers relating to Creader V+.

Question: System halts when reading data stream. What is the reason?

Answer: It may be caused by a slackened connector. Please turn off the Creader V+, firmly connect the connector, and switch on it again.

Question: Screen of main unit flashes at engine ignition start.

Answer: Caused by electromagnetic disturbance and this is normal phenomenon.

Question: There is no response when communicating with on-board computer.

Answer: Please confirm the proper voltage of power supply and check if the throttle has been closed, the transmission is in the neutral position, and the water is in proper temperature.

Question: Why are there so many fault codes?

Answer: Usually, it's caused by poor connection or fault circuit grounding.