CGSULIT

Shenzhen Sunite Technology Co., Ltd

Website: www.cgsulit.com
E-mail: support@cgsulit.com

CG300
CAN OBDII& EOBD Code Reader
User's Guide

Shenzhen Sunite Technology Co., Ltd

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Subject to the conditions of this limited warranty, Shenzhen Sunite Technology Co., Ltd ("CGSULIT") warrants its customer that this product is free of defects in material and workmanship at the time of its original purchase for a subsequent period of one (1) year.

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

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2 The customer shall have no coverage or benefits under this limited warranty if any of the following conditions are applicable:

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

3 The customer shall bear the cost of shipping the product to CGSULIT. And CGSULIT shall bear the cost of shipping the product back to the customer after the completion of service under this limited warranty.

4 CGSULIT does not warrant uninterrupted or error-free operation of the product. If a problem develops during the limited warranty period, the consumer shall take the following step-by-step procedure:

a) The customer shall return the product to the place of purchase for repair or replacement processing, contact your local CGSULIT distributor or visit our website www.cgsulit.com to get further information.

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

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d) CGSULIT will repair the Product under the limited warranty within 30 days after receipt of the product. If CGSULIT cannot perform repairs covered under this limited warranty within 30 days, or after a reasonable number of attempts to repair the same defect, CGSULIT at its option, will provide a replacement product or refund the purchase price of the product less a reasonable amount for usage.

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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 code reader. The safety messages presented below and throughout this user's manual are reminders to the operator to exercise extreme care when using this device. Always refer to and follow safety messages and test procedures provided by vehicle manufacturer. Read, understand and follow all safety messages and instructions in this manual.

Safety Message Conventions Used

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

⚠ DANGER

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

⚠WARNING

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

⚠CAUTION

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

Important Safety Instructions

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

⚠WARNING

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

Table of Contents

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.
- Configure monitors
- Unit of measure.
- Key Beep Set
- Diag Beep Set
- Tool self-test

1.2.2 Arrow Icon

▶ An arrow icon indicates a procedure.

Example:

▶ To change menu language:
1. Use the UP/DOWN key 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 code reader.

2 Introduction

CG300 is developed by the most distinguished mind of the industry. It is specially designed to support all 10 OBDII service modes, including live data, O2 sensor test and more, on OBDII/EOBD compliant cars, SUVs, light-duty truck and mini-vans sold worldwide since 1996.

2.1 Code Reader Descriptions

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

Figure 2-1 Front View

A. **OBD II Cable** - provides communication for vehicle DLC.
B. **LCD Display** - shows menus, test results and operation tips.
C. **Green LED Display** - indicates the engine system is working normally (all monitors on the vehicles are active and performing their diagnostic testing), and no DTCs are found.
D. **Yellow LED Display** - shows the tool finds a possible problem. Pending DTCs exist or/and some of the vehicle's emission monitors have not run their diagnostic testing.
E. **Red LED Display** - indicates there are some problems in one or more of the vehicle's systems. In this case, the MIL lamp on the instrument panel is on.
F. **UP Key** - quick access to the Read Codes function before going to diagnostic menu and moves selection up. When looking up DTC, it is used to change value of selected character.
G. **DOWN Key** - quick access to the Clear Codes function before going to diagnostic menu and moves selection down. When looking up DTC, it is used to change value of selected character.
H. **LEFT SCROLL KEY** - goes to previous character when looking up DTCs. Scrolls back and forth through codes found and through different screens of data. Also it is used to make selection of PIDs when viewing custom PID list, and to view PID graphs.
I. **RIGHT SCROLL KEY** - goes to next character when looking up DTCs. Scrolls back and forth through codes found and through different screens of data. Also it is used to cancel all selections of PIDs when viewing custom PID list.
J. **One Click I/M Readiness Key** - quick checks state emissions readiness and drive cycle verification.

K. **ENTER Key** - confirms an action or movement and moves to next level.

L. **BACK Key** - cancels an action and returns to previous screen or level.

M. **Power Switch -** reboot the code reader

N. **HELP Key** - accesses to the Help function and it is also used to update the code reader when long pressed.

O. **USB Port –** provides a USB connection between the code reader and PC or laptop.

2.2 Accessory Descriptions

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

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

2 **USB Cable -** provides connection between the code reader and a computer to upgrade the tool.

2.3 Technical Specifications

Display: 2.8"TFT color display

Working Temperature: 0 to 60 ℃ (32 to 140 ℉)

Storage Temperature: -20 to 70 ℃ (-4 to 158 ℉)

Power Supply: 8-18V vehicle power

Supported Protocols: J1859-41.6, J1850-10.4, ISO9141, KWP2000 (ISO 14230), and CAN (Control Area Network ISO 11898)

Dimensions (L*W*H**)**: 159*92*28mm (L*W*H)

Weight: 0.3kg

3 Getting Started

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

3.1 Providing Power to Code reader

Before using the code reader, make sure to provide power to the code reader.

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

▶ To connect to vehicle power:

1. Locate the data link connector (DLC). The DLC is generally located under the dash on the driver side of the vehicle.
2. Connect the code reader with the DLC.
3. Switch the ignition key to the ON position.
4. The code reader automatically boots up.

IMPORTANT
Never try to provide power for the code reader from USB connection when the code reader is communicating with a vehicle.

3.1.2 Connecting to Personal Computer with USB Cable

The code reader 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 code reader and the large end to a computer.
2. Press the power switch of the code reader to power it on.

3.2 Application Overview

When the code reader boots up, the Home screen opens. This screen shows all applications loaded on the unit.

Following applications are preloaded into the code reader:

- **Diagnostics –** leads to OBDII screens for all 9 generic OBD system tests.
- **DTC Lookup –** leads to screens for diagnostic trouble code lookup.
- **Review Data –** leads to screens for access to tested data files.
- **Print Data –** leads to screens for access to printing function
- **About –** leads to screen that shows information about the code reader.
- **Setup –** leads to screens for adjusting default settings to meet your own preference when using the code reader.
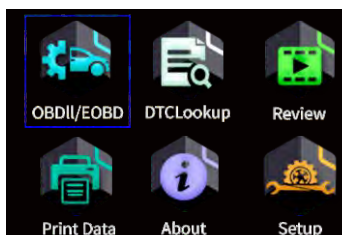

Figure 3.1 Sample Home Screen

4 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
- **Service $0A** - request Emission related DTCs with permanent status

When **Diagnostics** application is selected from Home screen, the code reader 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:

- 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
- Unit of measure

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. When the code reader links to vehicle, it checks the status of I/M Monitors automatically, and gives a summary report on the display as illustrated below.

System Status	
MIL Status	OFF
Codes Found	0
Ignition Type	SPark
Monitors N/A	4
Monitors OK	1
Monitors INC	5

Figure 4-1 Sample System Status Screen

NOTE
If vehicle is equipped with more than one computer module (for example a powertrain control module [PCM] and a transmission control module [TCM]), the code reader identifies them by their identification names (ID) assigned by manufacturer (i.e. Engine or Module $A4).

A screen with prompted information to erase the previously stored data in order to save the data from this test displays as below.

Diagnostics
Erase previously stored data to save data from this test
Yes   No
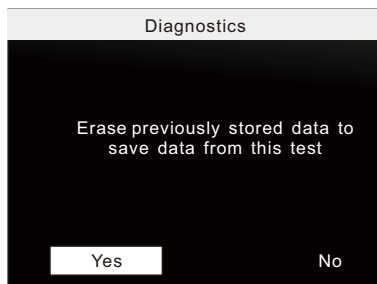
Figure 4-2 Sample Erase the Previous Stored Data Screen

If previous data is to be erased, select **Yes**; if data is not to be erased, Use the **LEFT/RIGHT** key to pick No. Wait a few seconds to return to Diagnostic Menu.

NOTE
If no data is stored in the code reader, the above screen will not show up.

4.1 Read Codes

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

- Stored Codes
- Pending Codes
- Permanent 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 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.

Permanent Codes are DTCs that are "confirmed" and are retained in the non-volatile memory of the computer until the appropriate monitor for each DTC has determined that the malfunction is no longer present and is not commanding the MIL on. Permanent DTC shall be stored in non-volatile memory and may not be erased by any diagnostic services or by disconnecting power to ECU.

There are two ways to read codes using

- Press the **Read** hot key to read codes from home screen.
- Traditional way: select Read Codes from the diagnostic menu.

▶ To read codes from a vehicle:
1. Press the **Read** hot key to directly read the codes from home screen. Or scroll with the **UP/DOWN** key to highlight **Read Codes** from Diagnostic Menu and press the **ENTER** key.
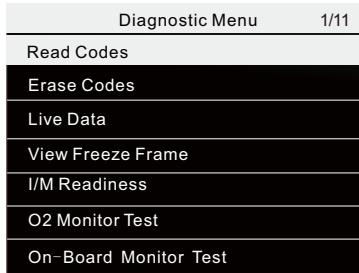
Diagnostic Menu	1/11
Read Codes	
Erase Codes	
Live Data	
View Freeze Frame	
I/M Readiness	
O2 Monitor Test	
On-Board Monitor Test	

Figure 4-3 Sample Diagnostic Menu Screen

2. Select **Stored Codes/Pending Codes/ Permanent Codes** and press the **ENTER** key to confirm.

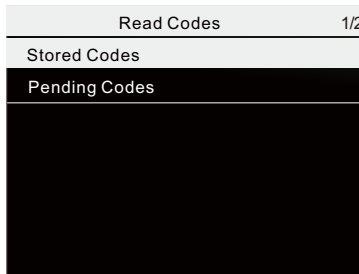| Read Codes	1/2
Stored Codes	
Pending Codes	

Figure 4-4 Sample Read Codes Screen

3. A code list including code number and its description displays.

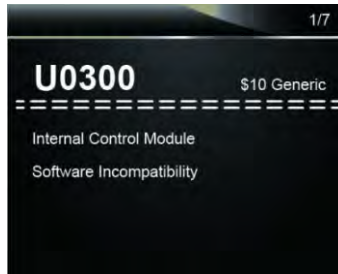CG300 OBDII/EOBD Code Reader User's Guide_English Version_V1.00

Figure 4-5 Sample DTC Description Screen

NOTE
If no DTCs are present, the message "No (Pending) Codes Found!" is displayed. If any manufacturer specific or enhanced codes detected, **CG300** reads the correct DTC information automatically according to the VIN.

4.2 Erase Codes

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

There are two ways to erase codes:

- Press the **Erase** hot key to erase codes from home screen.
- Traditional way: select Erase Codes from the diagnostic menu.

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

▶ To clear codes:
1. Press the **Erase** hot key to directly erase the codes from the home menu. Or use the **UP/DOWN** key to highlight **Erase Codes** from Diagnostic Menu and press the **ENTER** key.
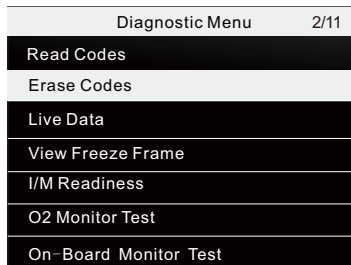
Figure 4-6 Sample Diagnostic Menu Screen

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

CG300 OBDII/EOBD Code Reader User's Guide_English Version_V1.00
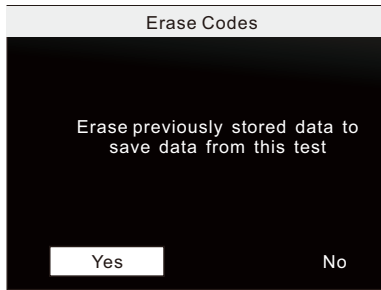
Figure 4-7 Sample Erase Codes Screen

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

4.3 Live Data

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

Menu options typically include:

- View Data
- Record Data
- Playback Data

4.3.1 View Data

The **View Data** function allows real time viewing of the vehicle's electronic control unit's PID data, including sensor data, operation of switches, solenoids and relays.

Menu options typically include:

- Complete Data
- Custom Data
- Unit of measure (Please refer to Chapter 7 **System Setup**)

4.3.1.1 Complete Data Set
Complete Data Set displays all supported PIDs of the vehicle being tested.

▶ To view all live PID data:
  1. Use the **UP/DOWN** key to highlight **Live Data** from Diagnostic Menu and press the **ENTER** key.
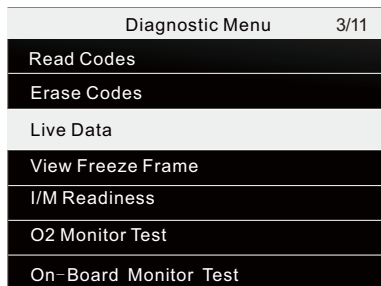
Figure 4-8 Sample Diagnostic Menu Screen

2. Select **View Data** from the list and press **ENTER** key to confirm.

Figure 4-9 Sample Live Data Menu Screen

3. Select **Complete Data Set** from the menu and press the **ENTER** key to display the datastream screen.

Figure 4-10 Sample View Data Menu Screen

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

Figure 4-11 Sample Complete List Screen

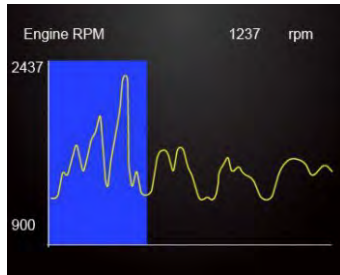5. Press the **ENTER** key to view PID graph if the PID gives a numeric reading.

Figure 4-12 Sample PID Graph Screen

6. Use the **BACK** key to return to diagnostic menu.

4.3.1.2 Custom Data List

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

▶ To create a custom data list:
1. Select **Custom List** from the menu and press the **ENTER** key.
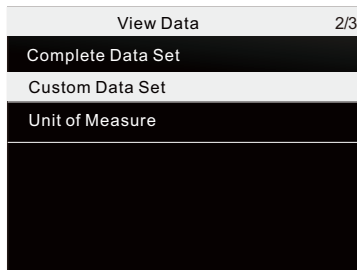
Figure 4-13 Sample Live Data Menu Screen

2. The custom datastream selection screen displays.
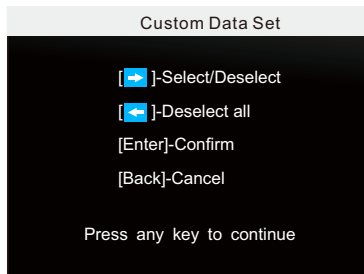
Figure 4-14 Sample Custom Datastream Selection Screen

3. Use the **RIGHT** key to select or deselect a line or press **LEFT** key to deselect all if needed . Press the **ENTER** key to confirm and **BACK** key to cancel.

Figure 4-15 Sample Custom Datastream Screen

4. When finished selection, press the **ENTER** key to display selected items.

Figure 4-16 Sample Datastream Screen

4.3.2 Record Data

The **Record Data** function is used to record PIDs to help diagnose intermittent drivability problems that can't be determined by any other method.

Menu options typically include:

- Complete Data
- Custom Data
- Unit of measure (Please refer to Chapter 7 **Set Up**)

NOTE

There are two types of trigger methods used.

- Manual Trigger---triggers recording whenever operators press the **ENTER** key.
- DTC trigger--- automatically triggers recording when a code is detected by vehicle. DTC Trigger is not available on all vehicles. Some vehicles need to be driven for a long period of time to store a code after a drivability fault occurs. If **DTC trigger** is selected to make a recording, there might not be drastic change in the data before and after trigger.

⚠ CAUTION

Do not operate the code reader while driving; always have two persons in vehicle when recording – one to drive and the other to operate the code reader.

▶ To record data:

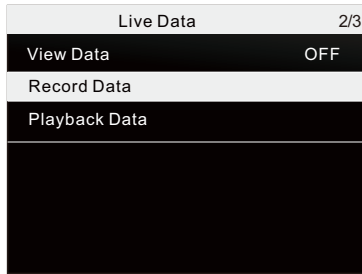1. Select **Record data** from the menu and press the **ENTER** key.

Figure 4-17 Sample Live Data Menu Screen

2. Refer to **View Data** to set up **Complete Data Set** or **Customer Data Set** to record.
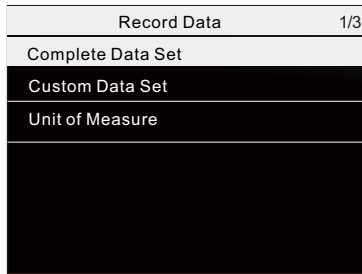

Figure 4-18 Sample Record Data Menu Screen

3. Scroll with the up and down arrow keys to pick a trigger mode and press the **ENTER** key to confirm.
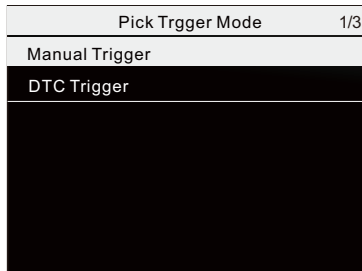

Figure 4-19 Sample Pick Trigger Mode Screen

4. Use the **UP/DOWN** key to select a memory location and press **ENTER** to confirm.
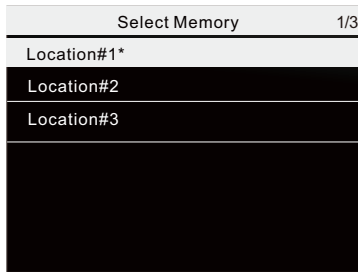
```
              Select Memory           1/3
    Location#1*
    Location#2
    Location#3
```

Figure 4-20 Sample Select Memory Screen

NOTE
The asterisk (*) on the screen indicates that a recording currently exists in this memory location. If an area with an asterisk (*) was picked, a message prompting to erase data displays.
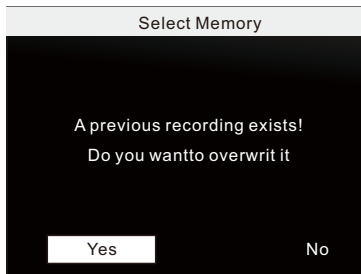
```
              Select Memory



            A previous recording exists!
            Do you wantto overwrit it



           Yes                    No
```

Figure 4-21 Sample Erase Recording Screen

5. If the recording is to be overwritten, selected **Yes**; if data is not to be overwritten, pick **No** to return to Select Memory screen and choose another one.
6. If **Manual Trigger** is selected, following screen displays:

```
              Manual  Trgger


    Ready  to  record
    Press［ENTER］to  start  recording
    Press［ESC］to  exit
```
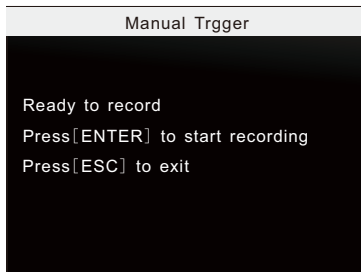
Figure 4-22 Sample Manual Trigger Recording Screen
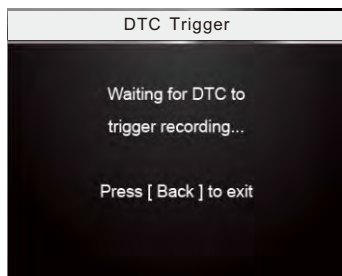
7. If **DTC Trigger** is picked, following screen displays:

Figure 4-23 Sample DTC Trigger Recording Screen

8. Press the **ENTER** key to start recording or wait codes to trigger.

Figure 4-24 Sample Recording Screen

NOTE
Different vehicles communicate at different speeds and support a different number of PIDs. Therefore, the maximum number of frames that can be recorded varies. The code reader keeps recording data until
- the memory is full.
- the operator presses the **BACK** key.

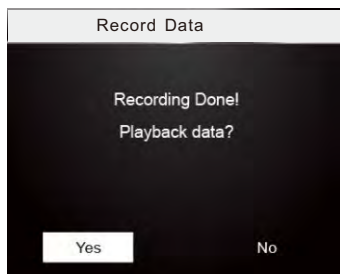9. After recording, the code reader displays a prompt to **Playback.**

Figure 4-25 Sample Record Data Screen

10. Select **YES** to view recorded data; pick **NO** or press the **BACK** key to return to **Record Data**.

4.3.3 Playback Data

The **Playback Data** is used to playback recorded PID data.

To playback data:
1. Scroll with the up and down arrow key to select **Playback Data** from the Menu.

Live Data	3/3
View Data	OFF
Record Data	
Playback Data	

Figure 4-26 Sample Record Data Screen

2. Use the **UP/DOWN** key to select a memory area that is marked with an asterisk (*) and press the **ENTER** to confirm.

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

Figure 4-27 Sample Record Data Screen

3. Press the **UP/DOWN** key to view recorded PIDs of each frame. Press the **BACK** key to exit.

1 of 36 frame	6
DTC_CNT	07
FUELSYS1	--
LOAD_PCT	0.0
LONGGF1(%)	-40
SHRTFT1(%)	99.2

Figure 4-27 Sample Record Data Screen

4.4 View 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 **View Freeze Frame** from the Diagnostic Menu. Details of freeze frame data displays.

Diagnostic Menu	4/11
Read Codes	
Erase Codes	
Live Data	
View Freeze Frame	
I/M Readiness	
O2 Monitor Test	
On-Board Monitor Test	

Figure 4-28 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.

View Freeze Frame	27
BARO(psi)	14.6
VPWR(V)	12.226
LOAD_ABS%	0.0
EQ_RAT	0.995
TP_R(%)	0.0
AAT(°F)	−40
TP_B(%)	0.0

Figure 4-29 Sample Freeze Data Screen

3. Use the **BACK** key to return to Diagnostic Menu

4.5 Read I/M Readiness Status Data

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

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

When the monitor's status is:

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

There are two types of I/M Readiness tests:

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

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

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

There are two ways to retrieve I/M Readiness Status data:

- One-click I/M readiness key
- Typical way: select I/M Readiness from Diagnostic Menu

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 by one-click I/M readiness key:
1. Press the **One-Click I/M Readiness Key** on the keypad and the following screen displays.

Figure 4-30 Sample Diagnostic Menu Screen

2. Colored LED and build-in beeper provide both visual and audible reminders for emission check and DTCs. Below is the intepretation of the LED and build-in beeper.

When the LED is :

- Green - Indicates that engine systems are "OK" and working properply (the number of Monitors equipped with the vehicle which have run and performed their self-diagnostic testing is in the allowed range. MIL is off.).No stored and pending DTCs exist. The vehicle is ready for an Emissions Test.
- Yellow - The tool finds a possible problem. It indicates the following two conditions:
    (1) Pending DTCs exist. Please check the I/M Readiness test result screen and use the Read Codes function to view detailed codes information.
    (2) Some of the vehicle's emission monitors have not working properly. If the I/M Readiness screen shows no DTC (including pending DTC), but the Yellow LED is still illuminated, it indicate a "Monitor Has Not Run" status.
- Red - Indicates some problems exist with one or more of the vehicle's system, and the vehicle is not ready for an Emissions Test. As well there are DTCs found. The MIL lamp on the vehicle's instrument panel will light steady. The problem that is causing the illumination of Red LED should be fixed before an Emissions Test or driving the vehicle further.

The built-in beeper works with the colored LED simultaneous, as an assistance to reflect the I/M Readiness test results:

- Green - two long beeps.
- Yellow - short, long, short beeps .

- Red - four short beeps.

NOTE
The built-in beeper which makes different tones corresponding to different LED indicators is invaluable when the test is performed while driving or in bright areas where LED illumination may not be visible.

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

Diagnostic Menu	5/11
Read Codes	
Erase Codes	
Live Data	
View Freeze Frame	
I/M Readiness	
O2 Monitor Test	
On-Board Monitor Test	

Figure 4-31 Sample Diagnostic Menu Screen

2. If the vehicle being tested supports both types of monitors, following screen displays.

I/M Readiness	2/11
Since DTCs cleared	
This driving cycle	

Figure 4-29 Sample I/M Readiness Screen

3. Depending on readiness test, one of these 2 screens will be present. Use the up and down arrow keys to scroll through data. Press the **BACK** key to exit.

Since DTCs cleared	1
MIL	OFF
MIS	ING
FuEL	ING
CCm	OK
CAT	ING
HCAT	N/A
EVAP	N/A

Figure 4-32 Sample IM Readiness Screen 1

This driving cycle	1
MIS	OFF
FuEL	INC
CCm	INC
CAT	OK
HCAT	INC
EVAP	N/A
AIR	N/A

Figure 4-33 Sample IM Readiness Screen 2

4.6 O2 Monitor Test

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

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

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

▶ To retrieve O2 monitor data:
1. Use the **UP/DOWN** key to highlight **O2 Monitor Test** from Diagnostic Menu and press the **ENTER** key. A screen with a list of available sensors displays.
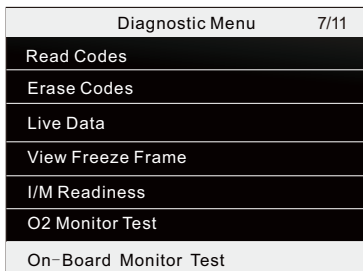
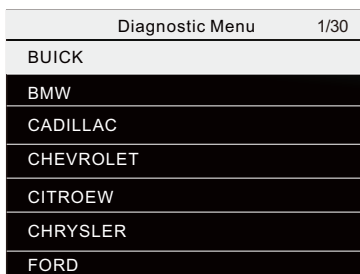| Diagnostic Menu	6/11
Read Codes	
Erase Codes	
Live Data	
View Freeze Frame	
I/M Readiness	
O2 Monitor Test	
On-Board Monitor Test	

Figure 4-34 Sample Diagnostic Menu Screen

2. Use the **UP/DOWN** key to highlight an O2 sensor and press the **ENTER** key to confirm. A screen with details of the selected sensor displays.

Figure 4-35 Sample O2 Monitor Test screen

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

Figure 4-36 Sample O2 Bank1 Sensor 1 Screen

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

Figure 4-37 Sample data of $81 screen

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

4.7 On-Board Monitor Test

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

NOTE

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

▶ To request on-board monitor test results:
1. Use the **UP/DOWN** key to highlight **On-Board Monitor Test** from Diagnostic Menu and press the **ENTER** key.

Diagnostic Menu	7/11
Read Codes	
Erase Codes	
Live Data	
View Freeze Frame	
I/M Readiness	
O2 Monitor Test	
On-Board Monitor Test	

Figure 4-38 Sample Diagnostic Menu Screen

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

On-Board Monitor Test	3/5
Oxygen Sensor Monitors and Const ...	
O2 Sensor Heater System Time to ...	
Exhaust Gas Recirculation System ...	
Ehanced Evaporative System Monit ...	
Catalyst Efficiency Monitor	
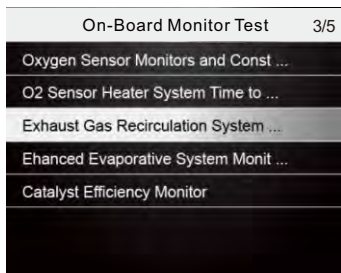
Figure 4-39 Sample Non-CAN Vehicle Test Screen

Diagnostic Menu	1/30
BUICK	
BMW	
CADILLAC	
CHEVROLET	
CITROEW	
CHRYSLER	
FORD	

Figure 4-40 Sample CAN vehicle test screen

3. Use the **UP/DOWN** key 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:

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Figure 4-41 Sample Non-CAN vehicle test screen

For CAN vehicles, test screen is illustrated as below:

Figure 4-42 Sample Can vehicle test screen

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

4.8 Component Test

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

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

▶ To perform a component test:
1. Use the **UP/DOWN** key to highlight **Component Test** from Diagnostic Menu and press the **ENTER** key. A screen with a list of available tests displays.

Diagnostic Menu	8/11
Component Test	
Vehicle Information	
Modules Present	
Unit of Measure	
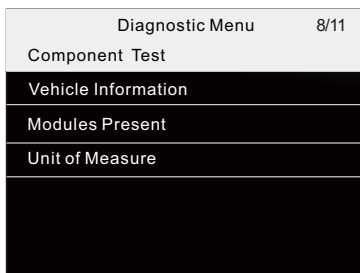
Figure 4-43 Sample Diagnostic Menu Screen

2. Use the **UP/DOWN** key to highlight a system or component, press the **ENTER** key to start test and the code reader displays the message "Command Sent!".

Component Test	1/1
1 EVAP Sys. Leak test	
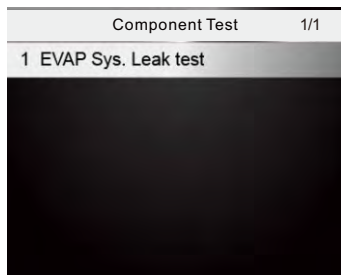
Figure 4-44 Sample Component test screen

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

4.9 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. Use the **UP/DOWN** key to highlight **Vehicle Info.** from Diagnostic Menu and press the **ENTER** key.
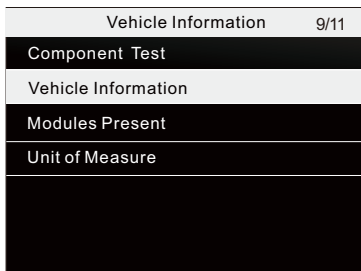
Figure 4-45 Sample Diagnostic Menu Screen

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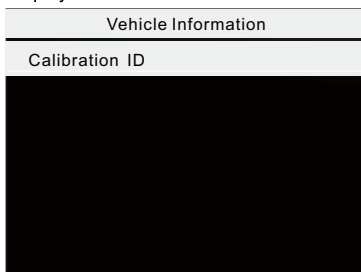

Figure 4-46 Sample Vehicle Info Screen

3. Use the **UP/DOWN** key to highlight an available option and press the **ENTER** key. A screen with details of the selected option displays.
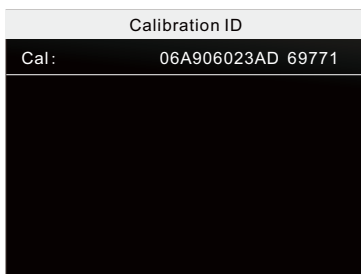
Figure 4-47 Sample Calibration ID Screen

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

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4.10 Modules Present

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

▶ To view module IDs and communication types:
1. Use the **UP/DOWN** key to highlight **Modules Present** from Diagnostic Menu and press the **ENTER** key.

Diagnostic Menu	10/11
Component test	
Vehicle Information	
Modules Present	
Unit of Measure	
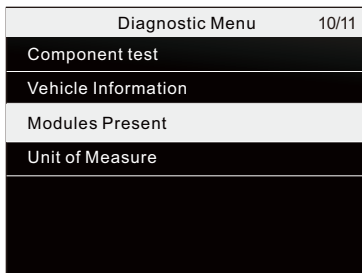
Figure 4-48 Sample Diagnostic Menu Screen

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

Modules Present	
ID	Protocol
$10	ISO 9141-2

Figure 4-49 Sample Module Present Screen

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

5. DTC Lookup

DTC Lookup menus allows to request DTC definitions stored in the code reader.

▶ To Look up DTCs:
1. Use the **LEFT/RIGHT** key to highlight **DTC Lookup** from Home Screen and press the **ENTER** key.

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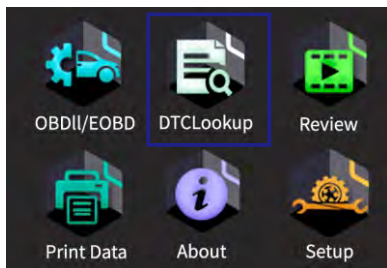
Figure 5-1 Sample Home Screen

2. Use the **LEFT/RIGHT** key to select the desired character, then press the **UP/DOWN** key to change the digit you want to enter a valid code number. Press the **ENTER** key to confirm.

Figure 5-2 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 code reader 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.
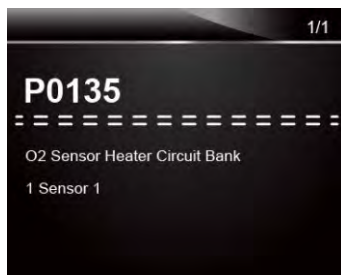
Figure 5-3 Sample Trouble Codes Screen

6 Review Data

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

▶ To review recorded data:
　1. Use the **LEFT/RIGHT** key to highlight **Review Data** from home screen and press the **ENTER** key.
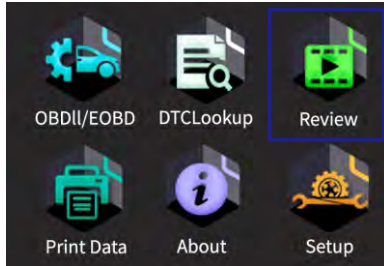
Figure 6-1 Sample Home Screen

　2. A screen with a list of test records displays. If no data is recorded, the message "No Data available!" is displayed.
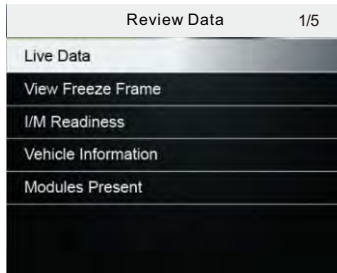
Figure 6-2 Sample Playback Screen

　3. Use the **UP/DOWN** key to highlight an optional record and press the **ENTER** key. Details of the test record displays. View and analysis the recorded information, then press **BACK** to exit.

7 System Setup

This section illustrates how to program the code reader to meet your specific needs.
When Setup application is selected, a menu with available service options displays. Menu options typically include:

- Language
- Configure monitors
- Unit of measure
- Key Beep Set
- Diag Beep Set
- Tool self-test

7.1 Select Language

Selecting Language opens a screen that allows you to choose system language.

▶ To configure system language:
　1.　Use the **LEFT/RIGHT** key to highlight **Setup** from home screen and press the **ENTER** key.
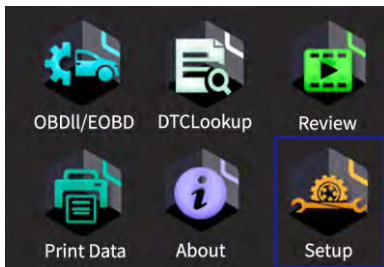
Figure 7-1 Sample Home Screen

2. A screen of a list of menu options displays.
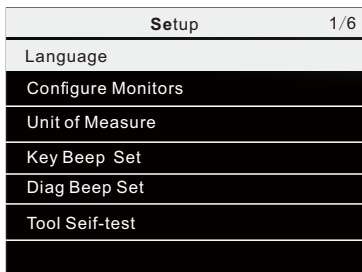
Figure 7-2 Sample Setup Screen

3. Press the **UP/DOWN** 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

7.2 Configure Monitors

This menu allows the users to configure the monitors required to test spark ignition and compression ignition, the number of monitors to pass diagnosis, and restore the default settings. Menu options typically include:

- Spark IGN Required Monitors
- Compression IGN Required Monitors
- Allowed INC Monitors

- Reset Factory Default

There are two different types of monitors: continuous and non-continuous. Continuous monitors are different in design from the non-continuous monitors. Continuous monitors are being constantly tested and evaluated by the car's computer while the car is running. Conversely, the non-continuous monitors require certain conditions to be met before a test or series of tests can be completed.

Continuous Monitors:

- Misfire
- Fuel System
- Comprehensive Component

Non-Continuous Monitors:

NOTE

Non-continuous monitors are different for spark ignition cars (gasoline engines) and compression ignition card (diesel engines).

Spark ignition vehicles (Gas)

- Catalyst (CAT)
- Heated Catalyst
- Evaporative (EVAP) System
- Secondary Air System
- Oxygen (O2) Sensor
- Oxygen Sensor Heater
- EGR (Exhaust Gas Recirculation) and/or VVT System

Compression ignition vehicles (Diesel)

- NMHC Catalyst
- NOx/SCR After treatment
- Boost Pressure
- Exhaust Gas Sensor
- PM Filter
- EGR and/or VVT System

▶ To configure monitors:
1. Use the **UP/DOWN** key to highlight **Configure Monitors** from **Setup** menu and press the **ENTER** key to confirm.

Setup	2/6
Language	
Configure Monitors	
Unit of Measure	
Key Beep Set	
Diag Beep Set	
Tool Seif-test	

Figure 7-3 Sample Setup Screen

2. A screen with the optional monitors to be configured displays.
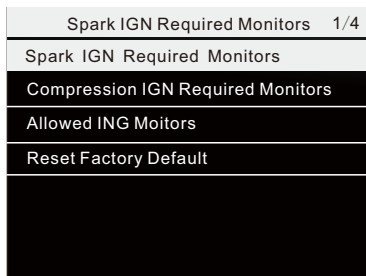
Figure 7-4 Sample Configure Monitors Display

7.2.1 Spark IGN Required Monitors

In this menu, the operators can configure monitors for spark ignition cars (gasoline engines).

▶ To configure spark IGN required monitors:
1. Use the **UP/DOWN** key to highlight **Spark IGN Required Monitors** from menu and press the **ENTER** key to confirm.
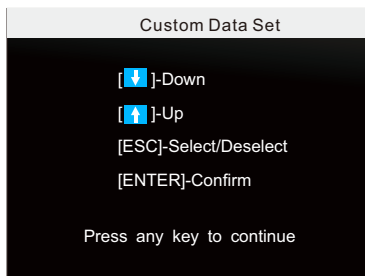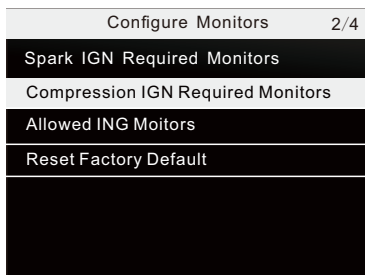2. The custom monitors selection screen displays.

Figure 7-5 Sample Custom Monitors Selection Screen

3. Use the **RIGHT** key to select or deselect a monitor or press the **LEFT** key to deselect all the monitors. Press the **ENTER** key to confirm and **BACK** key to cancel.
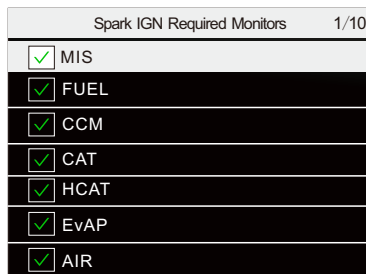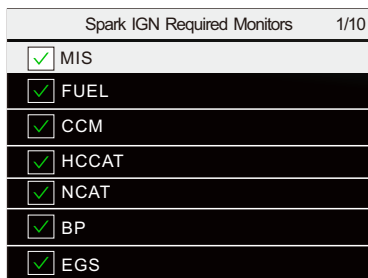

Figure7-6 Sample Spark IGN Required Monitors Selection Screen

NOTE
The number to the upper right corner of display indicates the total number of optional monitors and sequence of currently selected monitor.

7.2.2 Compression IGN Required Monitors

In this menu, the operators can configure monitors for compression ignition cars (diesel engines).

▶ To configure spark compression required monitors:
   1. Use the **UP/DOWN** key to highlight **Compression IGN Required Monitors** from the menu and press the **ENTER** key to confirm.
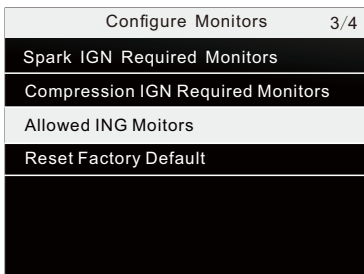
Configure Monitors	2/4
Spark IGN Required Monitors	
Compression IGN Required Monitors	
Allowed ING Moitors	
Reset Factory Default	

Figure 7-7 Sample Configure Monitors Display

2. The custom monitors selection screen displays and Use the **RIGHT** key to select or deselect a monitor or press the **LEFT** key to deselect all the monitors. Press the **ENTER** key to confirm and **BACK** key to cancel.

Spark IGN Required Monitors	1/10
✓ MIS	
✓ FUEL	
✓ CCM	
✓ HCCAT	
✓ NCAT	
✓ BP	
✓ EGS	

Figure7-8 Sample Spark IGN Required Monitors Selection Screen

7.2.3 Allowed INC Monitors

Emissions tests vary depending on the geographic or regional area in which the vehicle is registered. SC301 provides a more flexible way to meet different standards, which allows the user to select 0, 1, 2, 3 INC monitors in test.

▶ To configure allowed INC monitors:
   1. Use the **UP/DOWN** key to highlight **Allowed INC Monitors** from the menu and press the **ENTER** key to confirm.

Figure7-8 Sample Configure Monitors Selection Screen

2. The custom INC monitors selection screen displays and scroll with the up and down arrow keys to select. Press the **ENTER** key to confirm and **BACK** key to cancel.
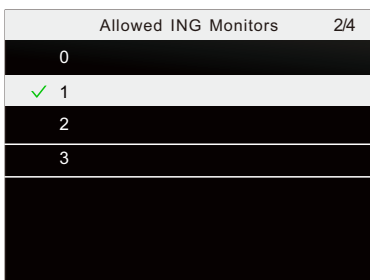

Figure 7-9 Sample Allowed INC Monitors Selection Screen

7.2.4 Reset Factory Default

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

▶ To reset factory default:

1. Use the **UP/DOWN** key to highlight **Reset Factory Default** from the menu and press the **ENTER** key to confirm.
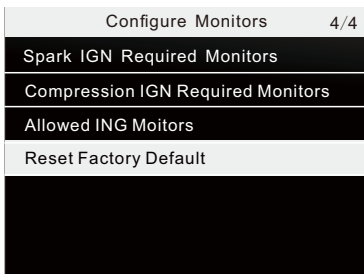
Figure7-10 Sample Configure Monitors Selection Screen

2. A message prompting to reset factory default displays. Answer **Yes** to confirm the request or answer **No** to abort and return.

Figure7-11 Sample Reset Factory Default Screen

7.3 Unit of measure

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

▶ To change the unit setup:
1. Scroll the **UP/DOWN** keys to highlight **Unit of Measure** from Setup menu and press the **ENTER** key.
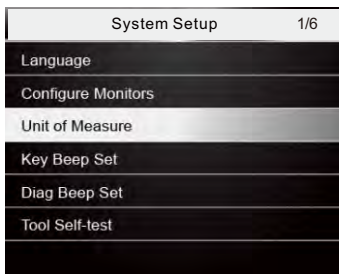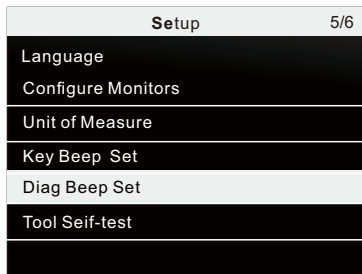

Figure 7-12 Sample Setup Screen

2. Press the **UP/DOWN** arrow key select an item and press the **ENTER** key to save and return.
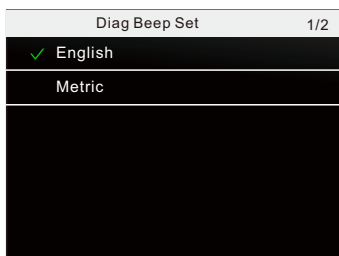
Figure 7-13 Sample Unit Selection Screen

7.4 Key Beep Set

Key beep set opens a dialog box that allows you to turn on/off the built-in speaker for key pressing.

▶ To set the key beep:
1. Use the **UP/DOWN** key to highlight **Key beep set** from Setup menu and press the **ENTER** key.

Se*tup*	4/6
Language	
Configure Monitors	
Unit of Measure	
Key Beep Set	
Diag Beep Set	
Tool Seif-test	
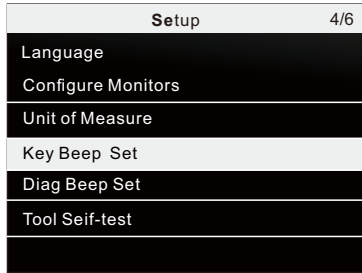
Figure 7-14 Sample Setup Screen

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

Diag Beep Set	2/2
Beep NO	
✓ Beep OFF	

Figure 7-15 Sample Beep Set Selection Screen

7.5 Diag Beep Set

Key beep set opens a dialog box that allows you to turn on/off the built-in speaker when performing diagnostics.

▶ To set the diag beep:
1. Use the **UP/DOWN** key to highlight **Key Beep Set** from Setup menu and press the **ENTER** key.

Se*tup*	5/6
Language	
Configure Monitors	
Unit of Measure	
Key Beep Set	
Diag Beep Set	
Tool Seif-test	

Figure 7-16 Sample Setup Screen

2. Press the **UP/DOWN** key to select an item and press the **ENTER** key to save and return.
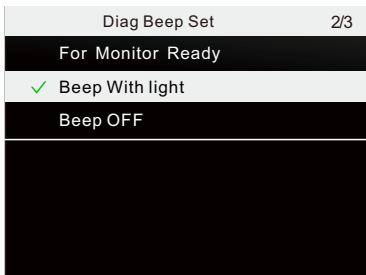
Figure 7-17 Sample Diag Beep Selection Screen

7.6 Tool Self-test

Key beep set opens a dialog box that allows you to check if the LCD display and the operation of keypad and LED are working correctly. Typical menu includes:

- Display Test
- Keypad Test
- LED Test

7.6.1 Display Test

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

▶ To test the display:
1. Use the **UP/DOWN** key to highlight **Display Test** from Setup menu and press the **ENTER** key to start test.
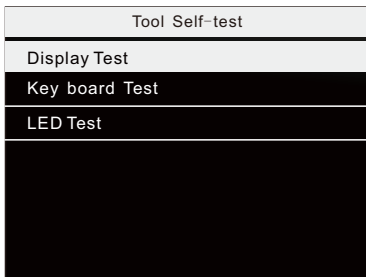
Figure 7-18 Sample Tool Self-test Screen

2. Check if there are any missing spots in the LCD screen.

Figure 7-19 Sample LCD Test Screen

3. To quit the test, press the **BACK** key.

7.6.2 Keypad Test

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

▶ To test the keypad:
1. Use the **UP/DOWN** key to highlight **Keyboard Test** from Setup menu and press the **ENTER** key.
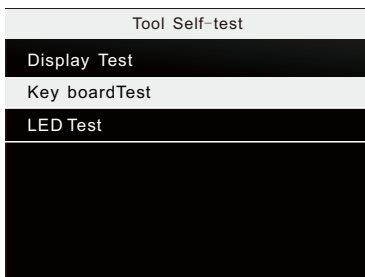
Figure 7-20 Sample Tool Self- test Screen

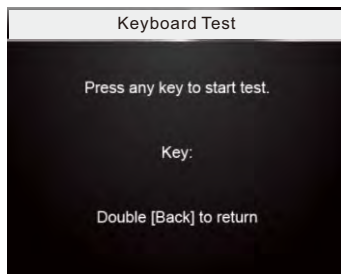2. Press any key to start test. Key name or scroll direction should show on display when you press a key. Double press **BACK** to return.

Figure 7-21 Sample Key Test Screen

7.6.3 LED Test

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

▶ To test the LED:

1. Use the **UP/DOWN** key to highlight **LCD Test** from Setup menu and press the **ENTER** key to start test.
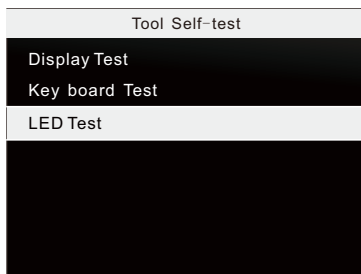
Figure 7-22 Sample Tool Self-test Screen

2. Scroll with the up and down arrow keys to select the desired LED lamps to check. The LED should turn on/off according to the selected commands.
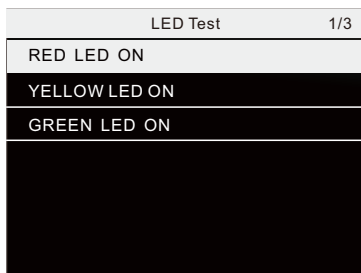

Figure 7-23 Sample LED Test Screen

4. To quit the test, press the **BACK** key.

8 Tool Information

Selecting About option opens a screen that show information about your code reader, such as serial number and software version.

▶ To view information of your code reader:
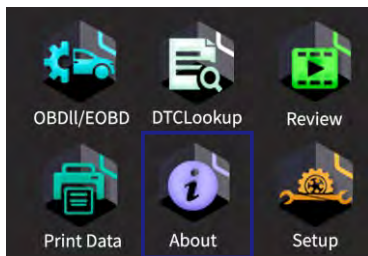1. Use the **LEFT/RIGHT** key to highlight **About** from home menu and press the **ENTER** key.

Figure 8-1 Sample Home Screen

CG300 OBDII/EOBD Code Reader User's Guide_English Version_V1.00

2. A screen with detailed information of the code reader displays.

Figure 8-2 Sample Tool Information Screen

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

9 CGSULIT Update Assist Introduction

CGSULIT Update Assist is an extremely easy-to-use that is used to update CG300 code reader. Also, it allows you to upload recorded test results to your PC or laptop for analysis and printing. Still, it enables you to search DTC, read the manuals as well set up the language and style of the application.

This section illustrates how to use GSULIT Update Assist to perform its functions:

- Updating the Code Reader
- Printing
- Searching DTC
- Read the manuals
- Update tool settings

9.1 Updating the Code Reader

CG300 is able to be updated to keep you stay current with the latest development of diagnosis. To update the code reader, you need following tools:

- CG300 OBDII/EOBD Code Reader
- **CGSULIT Update Assist**
- PC or laptop with USB Ports and Internet explorer
- USB cable

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

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

IMPORTANT Do not disconnect the code reader from computer, or power off the computer during the process of updating.

To update the code reader:

▶ 1. Download the **CGSULIT Update Assist** and update files from our website and save the applications and files in computer disk.
2. Unzip the update tool file. Follow instructions on computer screen to install the tool and driver.
3. Double click the [icon] desktop icon to launch the application.
4. Click Setting and select the language you want to update.
5. Connect **CG300** to computer with USB cable provided, the CGSULIT Update Assist will detect the device automatically.
6. Click <Update Online> or <Update Offline> the available update software will display.
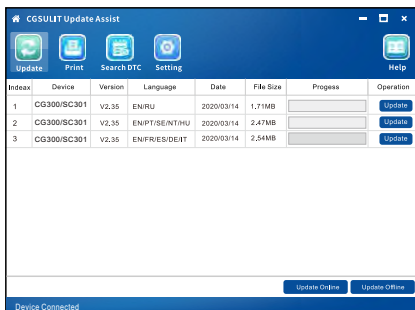
Figure 9-1 Sample Update Mode Screen

NOTE
After entering update mode successfully, there are two different ways for you to update the device.

● Update online: With internet connection, the **CGSULIT Update Assist** automatically detects the software version of the code reader and read the latest software version from the server. If any new diagnosis software found, it will automatically upgrade your CG300 Otherwise a prompt of new version not detected displays.
● Update offline Update files will be automatically stored in your computer hard drive with every successful online update. When picking Update offline, the **CGSULIT Update Assist** will detect these local files automatically and display them in a list. Ticking one of them will lead to an update process, which eliminates the need to download any file.

7. Select the software version you need and click the <Update> button to start updating.
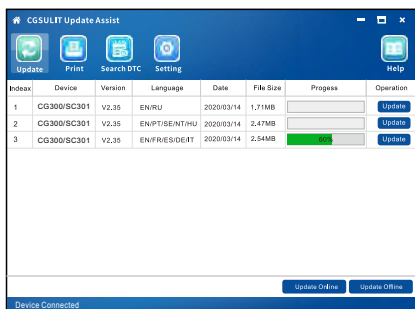

Figure 9-2 Sample Update Process Screen

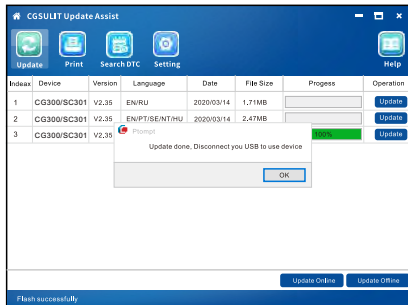8. A **Update Finished** Message displays when the update is completed.

Figure 9-3 Sample Update Done Screen

9.2 Printing

The **Print Data** function is used to print test results through computer. It is not available to perform this function when the device is in Update Mode.

To print test results:

▶ 1. Download and launch CGSULIT Update Assist as instructed on page 44 of 9.1 **Updating the Code Reader**.

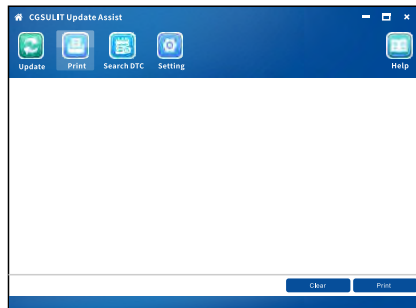2. Activate the application by clicking the **Print** Button from the menu.

Figure 9-4 Sample Printing Activation Function

3. Connect CG300 to computer with the USB cable supplied to power it on.

4. Use the **LEFT/RIGHT** key to select **Print Data** from home screen of the CG300 and press the **ENTER** key to confirm.
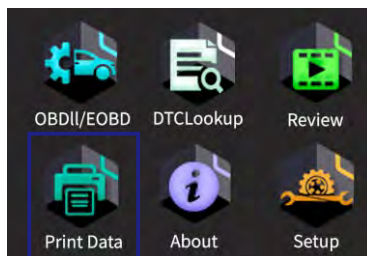

Figure 9-5 Sample Home Screen Function

5. Use the **UP/DOWN** key to select desired data to print. If all recorded data to be printed, use the **UP/DOWN** key to select **Print All Data**.
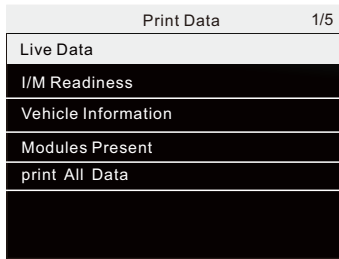
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Figure 9-6 Sample Print Data Menu Screen

6. Press the **ENTER** key to load data to the edit box of update tool CGSULIT Update Assist Click the **Clear** key to delete the data and Use **Copy** key to save the data to the clipboard on the computer. It allows the users to edit the text by moving the cursor to the edit box.
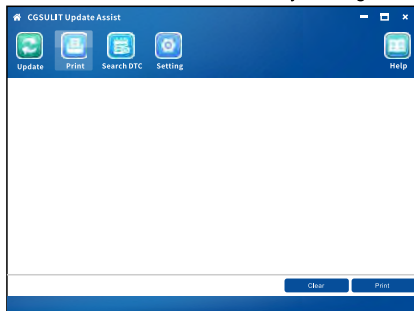

Figure 9-7 Sample Printing Data Screen.

7. With the printer correctly connected, use the **Print** key to print the testing data. Press the **BACK** key to return to home screen.

9.3 Searching DTC

Searching DTC option opens a screen that allows you to look up the DTC.

To search DTC:

1. Download and launch CGSULIT Update Assist as instructed on page 44 of 9.1 **Updating the Code Reader**.
2. Start the printing application by clicking the **Search DTC** Button from the menu.
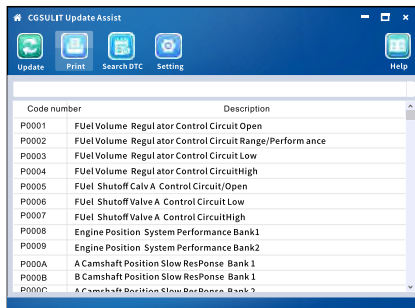3. Input the valid code number and the definition of the code will be highlighted on the screen.

Figure 9-8 Sample Search DTC Screen

9.4 Help Center

Help button opens a screen that allows you to read the manual in PDF format.

To read the manual:

▶ 1. Download and launch CGSULIT Update Assist as instructed on page 44 of 9.1 **Updating the Code Reader**.
2. Activate the application by clicking the Help Button from the menu.
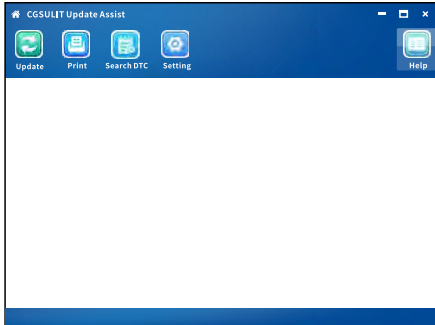3. Double click to open the manual you want to check.

Figure 9-9 Sample User Manual Screen

9.5 Update Tool Settings

Settings option opens a screen that allows you to set the language and style of the tool. Still, it offers the option for you to automatically check the update files from the server.

To set up the update tool:

▶ 1. Download and launch CGSULIT Update Assist as instructed on page 44 of 9.1 **Updating the Code Reader**.
2. Activate the application by clicking the **Settings** from the menu.
3. Select the language and the style you want from the left to right column.
4. Select and tick the "Auto check for updates" on the bottom of the screen, then press **Apply** key to confirm.