

Carmanscan Lite User's Guide

Ver. 080501



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WARNING

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Safety Warnings

Safety Instruction

Safety Warning

Carmanscan Lite mentioned in this User's Guide is designed for those who have basic qualifications for using this system.

For safe and effective use, follow the safety instructions described in this User's Guide.

The followings are general instructions that you must remember when you use the system.



**Do not drop the Carmanscan Lite.
Always use Carmanscan Lite in the rubber Shroud to protect it.**



**Do not place Carmanscan Lite on the power distributor.
Although Carmanscan Lite was designed to be free from electromagnetic interference, but excessive electromagnetic interference may damage the system.**



**Excessive surge or electric shock fed by power cable may damage the power supply system of Carmanscan Lite.
Do not use**



**Carmanscan Lite in an environment where power supply is unstable.
The AC/DC adapter was designed for 12V DC.
Use AC/DC adapter with rated voltage.**

Chapter 1 : General Descriptions

1. Product Features

Carmanscan Lite can check vehicle ECU information and error status through OBD-I, OBD-II, and CAN communication.

You can connect Carmanscan Lite vehicle diagnosis connector with a diagnosis cable, check if any of engine, automatic transmission, ABS, air bag, power steering, and other devices has an error, view Current Data, and use actuator drive features.

Carmanscan Lite has the following features:

- ▶ Diagnoses Korean, Japanese, European vehicles.
 - OBD-I ,OBD-II compatible protocol: OBD-II (ISO 9141-2), OBD-II (SAE-J1850), KWP-2000, CAN and SAE J1587.
- ▶ Supports trouble diagnosis and service date search.
 - You can diagnose using the sensors and switches installed in the car, and save and reload the sensor data.
- ▶ Supports actuator auto inspection.
 - This uses the scanner run/stop the actuator and switches by force to check if the device is normal.
- ▶ You can view the following test results:
 - O2 Sensor Test and Monitoring Test
 - Freeze frame data
- ▶ You can save data or upgrade the diagnosis program by connecting to a PC.
- ▶ You can change the sound effects and display unit of the scanner.
- ▶ Provides LCD brightness adjustment and keypad testing.
- ▶ With the built-in battery, you can perform diagnosis without power supply.
- ▶ Supports TPMS communication (optional)

Chapter 1 : General Descriptions

2. Product Specifications

| | |
|-------------------------|--|
| Case | High strength PC ABS resin |
| LCD | 320 X 240 dpi LED rear lightings Standard character display: 40 spaces X 12 lines |
| Keypad | Power ON/OFF, Variable function key x 6, arrow key x 4 Fixed function key x 5 Numeric key x 10 Type: soft touch key method |
| Memory | Basic memory: 256MB |
| Operating temperature | 0 °C - 50 °C |
| Voltage | 7-36V DC input |
| Self-diagnosis coverage | OBD-II (ISO9141-2) compatible cars KWP2000, CAN, J1587 compatible cars OBD-II (SAE-J1850) compatible cars TPMS compatible cars (optional) |
| Dimension | Width: 125mm Length: 223mm Height: 68mm |
| Power consumption | 3.6 Watts * Lasts for 1000 hours in full charge * Operates up to 2 hours |

Chapter 1 : General Descriptions

3. Rechargeable Battery

The rechargeable battery pack has the following features:

- Voltage of the battery pack gradually decreases even when the system does not run.
- Before you use the product for the first time, be sure to fully charge the battery.



Always use the rechargeable batter pack provided by Nextech.

- Using a 3rd party product may cause explosion.
(7.4V 2200mAh lithium ion battery pack)



Do not heat the battery pack.

- It may cause explosion.



Do not short the battery pack terminal.

- It may cause explosion.



Do not place the battery pack on or near hot material over 60°C.

- It may cause explosion.



Keep the battery pack away from touch of children or animal.

- It may cause fire or injury.



To prevent the battery pack from being discharged, always Connect the power before using the system. Because of Discharged battery pack you may lose your screen captures, flight record data, etc.

Chapter 1 : General Descriptions

4. List of Components

1. BASIC KIT

| NO. | Item No | Item Description |
|-----|-------------|---------------------------|
| 1 | 20100-00100 | Carmanscan Lite Main body |
| 2 | 20100-00900 | Rubber Shroud |
| 3 | 20100-00300 | Carrying Case |
| 4 | 20100-00700 | Operation Manual |
| 5 | 20100-00200 | DLC Main Cable (16P) |
| 6 | 20100-00600 | Cigar Light Power Cable |
| 7 | 20100-01100 | AC/DC Power Adaptor |
| 8 | 20100-01200 | AC Electronic Power Cord |
| 9 | 20100-01000 | S/W Download CD |
| 10 | 20100-00500 | USB Cable |
| 11 | 20100-01400 | Power Extension Cable |

2. TPMS (Option)

| NO. | Item No | Item Description |
|-----|-------------|------------------|
| 1 | 20100-01300 | TPMS RF Module |

Chapter 1 : General Descriptions

3. ASIAN KIT

| NO. | Item No | Item Description |
|-----|-------------|---------------------------------|
| 1 | 20100-10100 | Hyundai/Mitsubishi Cable (12P) |
| 2 | 20100-10201 | Kia/Mazda Adaptor (6+1P) |
| 3 | 20100-10202 | Kia Adaptor 20P (Blue) |
| 4 | 20100-10300 | Daewoo,GM Adaptor (12P) |
| 5 | 20100-10401 | Ssangyong Adaptor (14P) |
| 6 | 20100-10402 | Ssangyong Adaptor (20P) |
| 7 | 20100-20101 | Toyota, Lexus Adaptor (17P "R") |
| 8 | 20100-20102 | Toyota, Lexus Adaptor (17P "C") |
| 9 | 20100-20200 | Samsung / Nissan Adaptor (14P) |
| 10 | 20100-20301 | Mitsubishi Cable (12+16P) |
| 11 | 20100-20400 | Honda Adaptor (3P) |
| 12 | 20100-20401 | Honda Adaptor (5P) |
| 13 | 20100-20501 | Mazda "C" Adaptor (17P) |
| 14 | 20100-20600 | Subaru Adaptor (9P) |
| 15 | 20100-60000 | LOW SPEED CAN Adaptor |

Chapter 1 : General Descriptions

4. EUROPEAN KIT

| NO. | Item No | Item Description |
|-----|---------------|-------------------------------|
| 1 | 20100-30100 | AUDI/VW Cable (2+2P) |
| 2 | 20100-30200 | BMW Adaptor (20P) |
| 3 | 20100-30301 | BENZ 38pin Board |
| 4 | 20100-30302 | BENZ Cable (3 LINER) |
| 5 | 20100-30400 | OPEL Adaptor (10P) |
| 6 | 20100-40100 | PSA Cable (2P) |
| 7 | 20100-40101 | PSA Cable (30P) |
| 8 | 20100-40200 | RENAULT Cable (12P) |
| 9 | 09910-49040 | FIAT Adaptor (3P) |
| 10 | 20100-00700-1 | OPERATION MANUAL (EUROPEAN I) |

5. AUSTRALIAN/USA KIT

| NO. | Item No | Item Description |
|-----|-------------|---------------------|
| 1 | 20100-50200 | Ford Cable (20P) |
| 2 | 20100-50100 | Holden Adaptor (6P) |

Chapter 1 : General Descriptions

5. Photos and Descriptions of Components

Operation Manual

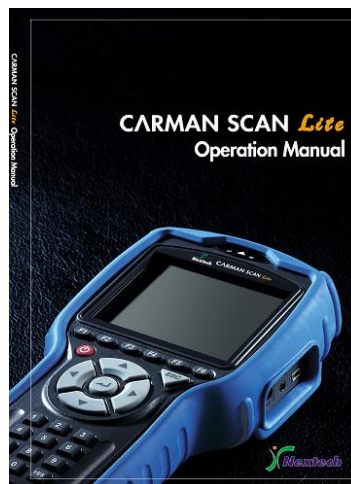


Figure 1.1 Operation Manual

Be sure to read the manual before you use the product.

Exterior View

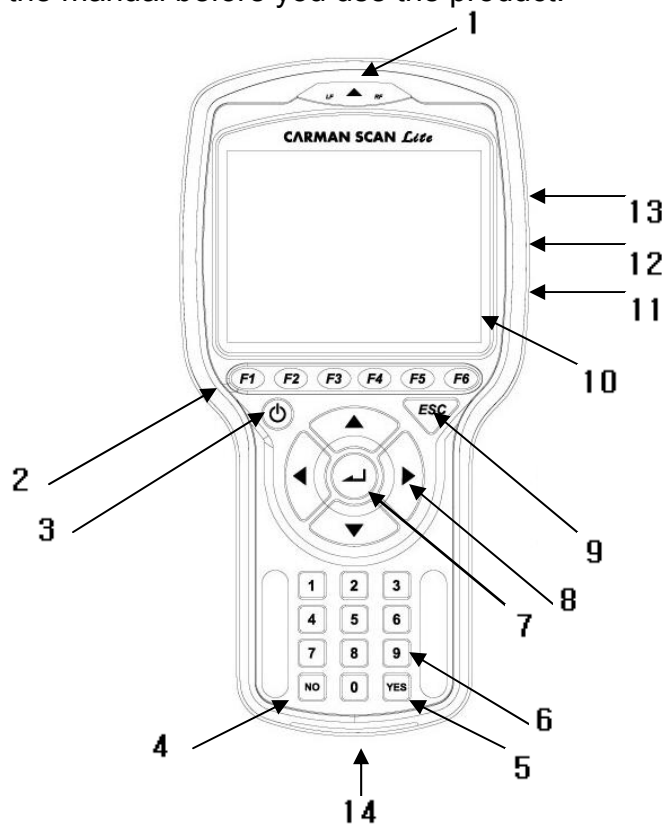


Figure 1.2 Carmanscan Lite Exterior View

Chapter 1 : General Descriptions

- #1 : Power supply LED / Communication status LED
 - When the system is connected to power supply, you will see LED at LF is on before you turn power on. When disconnected, LED is off.
- #2 : Function keys (F1~F6)
 - You can use these keys to clear trouble codes, view help, fix Current Data selection, etc.
- #3 : Power on/off key
 - Turns power on/off.
- #4 : "NO" key
 - Press this key to check if the trouble code is cleared or if the actuator is activated.
- #5 : "YES" key
 - Press this key to check if the trouble code is cleared or if the actuator is activated.
- #6 : Numeric key (0~9)
 - Use this key to enter cylinder serial number when you replace the injector or to enter numbers such as immobilizer password.
- #7 : ENTER key
 - Use this key to execute the command you have chosen.
- #8 : Arrow key
 - Use this key to move cursor to the left/right/upper/lower sides.
- #9 : ESC key
 - Use this key to go back to previous screen or cancel the currently activated command.
- #10 : LCD screen
 - Displays system operation status.
- #11 : Power terminal
 - You can feed power using a dedicated adaptor.
- #12 : COM port
 - This is for developers. Do not use if you are ordinary users.
- #13 : USB port
 - This is used when you connect Carmanscan Lite to a PC to download the diagnosis program.
- #14 : DLC diagnosis connector
 - This is used to connect the diagnosis connector of the car.

Carmanscan Lite has a built-in diagnosis program to diagnose vehicles with a portable rechargeable battery.

Chapter 1 : General Descriptions

LCD Screen

Item 10 : LCD screen has 320 by 240 resolution with an EL
Black LCD

Note : The item numbers refer to Figure 1.2

Scan Tool Keys

The Import Scan Tool has the following soft-touch keys for operating the software:

Item 2 : Function keys (six of them): each key executes a command that
corresponds with an option listed at the bottom of the screen.

Item 9 : ESC (Escape) key: moves back one screen.

Chapter 1 : General Descriptions

Carrying Case



Figure 1.3 Carrying Case

Carman Scan Lite includes a number of adaptors and cables for diagnosing vehicles.

To keep the product against losing and damage, store the product in the bag when you are not using it.

S/W Download CD



Figure 1.4 S/W Download CD

Chapter 1 : General Descriptions

Rubber Shroud



Figure 1.5 Rubber Shroud

The rubber boots protect Carmanscan Lite against damage by external electrical/physical impact.

USB Cable



Figure 1.6 USB Cable

The USB cable connects the USB port of Carmanscan Lite and that of your PC and is used when you want to download the diagnosis software or save captured files to your PC.

Chapter 1 : General Descriptions

Cigar Light Power Cable



Figure 1.7 Cigar Light Power Cable

The cigar light power cable connects Carmanscan Lite with the cigar jack of vehicles to feed power to Carmanscan Lite.

TIPS) Carmanscan Lite has a built-in battery, so you can use without additional power supply. If the battery power is weak or is not charged you can use the cigar light power cable.

Power Extension Cable



Figure 1.8 Power Extension Cable

The power extension cable enables you to use the battery power as the power supply to Carmanscan Lite.

Chapter 1 : General Descriptions

DLC Main Cable (16P)



Figure 1.9 DLC Main Cable (16P)

DLC Main cable is called OBD-II cable. New cars released today all have built-in OBD-II

connectors compatible to the OBD-II specification.

You can diagnose new cars by directly connecting the DLC cable and do not have to connect any additional power connection because power is fed through the diagnosis connector.

TIPS) You can diagnose old cars by connecting an additional adaptor.

AC/DC Power Adaptor



Figure 1.10 AC/DC Power Adaptor

When you want to download the diagnosis program or review flight record, you can use this AC/DC Power adaptor to feed power.

Chapter 1 : General Descriptions

DLC Adaptor

The DLC adaptor is used to diagnose vehicles by connecting to the DLC main connector. As there are many similar ones, make sure to check the manufacturer labeled on the adaptor before use.

In addition, as a manufacturer produces several adaptors, you must check the type of the diagnosis connector installed in your car and the number of pins.



Some car makers feed power through the diagnosis connector but some does not. If power is fed through the diagnosis connector, do not connect additional power supply.

1) ASIAN KIT



Figure 1.11 Hyundai/Mitsubishi Cable (12P)

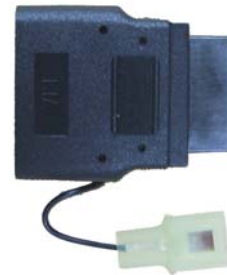


Figure 1.12 Kia/Mazda Adaptor (6+1P)



Figure 1.13 Kia Adaptor 20P (Blue)



Figure 1.14 Daewoo,GM Adaptor (12P)



Figure 1.15 Ssangyong Adaptor (14P)



Figure 1.16 Ssangyong Adaptor (20P)

Chapter 1 : General Descriptions



Figure 1.18 Toyota,Lexus Adaptor (17P'R')



Figure 1.19 Toyota,Lexus Adaptor (17P'C')



Figure 1.20 Honda Adaptor (3P)



Figure 1.21 Honda Adaptor (5P)



Figure 1.22 Mitsubishi Cable (12+16P)

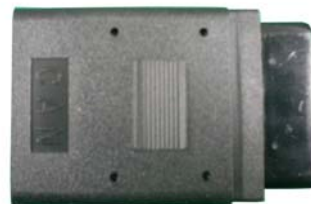


Figure 1.23 LOW SPEED CAN



Figure 1.24 Mazda 'C' Adaptor (17P)



Figure 1.25 Samsung/Nissan Adaptor (14P)

Chapter 1 : General Descriptions



Figure 1.26 Subaru Adaptor (9P)

Chapter 1 : General Descriptions

2) EUROPEAN KIT



Figure 1.27 PSA Cable (30P)



Figure 1.28 PSA Cable (2P)



Figure 1.29 FIAT Adaptor (3P)



Figure 1.30 RENAULT Cable (12P)



Figure 1.31 BENZ 38pin Board



Figure 1.32 OPEL Adaptor (10P)



Figure 1.33 AUDI/VW Cable (2+2P)



Figure 1.34 BENZ Cable (3 LINER)

Chapter 1 : General Descriptions



Figure 1.35 BMW Adaptor (20P)

3) AUSTRALIAN/USA KIT



Figure 1.36 Holden Adaptor (6P)



Figure 1.37 Ford Cable (20P)

Chapter 1 : General Descriptions

6. Power Supply

1. Cigar Light Power Cable

Power is fed through a cigar lighter cable.

But when the ignition switch is off or when you are starting the car, no power is supplied to the cigar lighter socket.

2. Car Battery

Connect the (+) terminal of the battery with red cable clip and the (-) terminal with black clip to feed power using the cigar lighter cable.

At this time regardless of location of the ignition switch and whether the car is started, power is always fed to the system.



As incorrectly connected electrode may give damage to the system, be careful.

3. DLC Main Cable (16p)

Including vehicles that meet the OBD-II protocol, some of diagnosis connectors can be powered directly by the DLC main cable without additional power supply.

4. Battery

If the built-in battery is used, you can use the system for 1 to 2 hours without power supply.

TIPS) This may change based on use and environment.

How to charge: If you do not use the system, connect the AC adaptor that came with the product. Then a led light is on at the LF LED, and if the battery is fully charged a green light is on at the RF LED (See Page 11 Figure 1.2).

5. AC/DC Adaptor

If the AC/DC adaptor is used for power supply, the battery will be automatically recharged depending on programs and it is also used for power supply to the main system.

Chapter 2: Menu Configuration

1. Before Getting Started

1. Before using the system, check if the battery is fully charged. If it is not charged, then connect external power supply or recharge the battery before you start the system.
 - If you use the system by connecting to a car, you can also feed power through the vehicle diagnosis connector.



If power is not fed by the vehicle diagnosis connector, you need to connect the cigar cable to feed power before you start communication with the car.

Voltage mismatch between ECU and Carmanscan Lite may cause a communication error.

2. Before you use the system, you must download the diagnosis program. The diagnosis program will be stored in the system memory.
 - Before you use the system, check if the diagnosis program matches the option you have purchased.

Initial Screen

This is the first screen you see when you turn on the system. Part number of your system is displayed.

TIPS) Figure 2.1 Initial Screen If no button is pressed, the system turns off automatically.

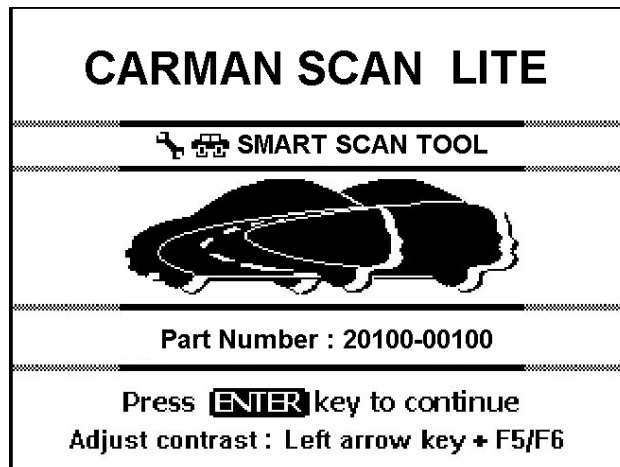


Figure 2.1 Initial Screen

Chapter 2: Menu Configuration

2. Menu Description

If you turn on Carmanscan Lite and press Enter at the initial screen, the main menu will be displayed. Followings are descriptions of each menu.

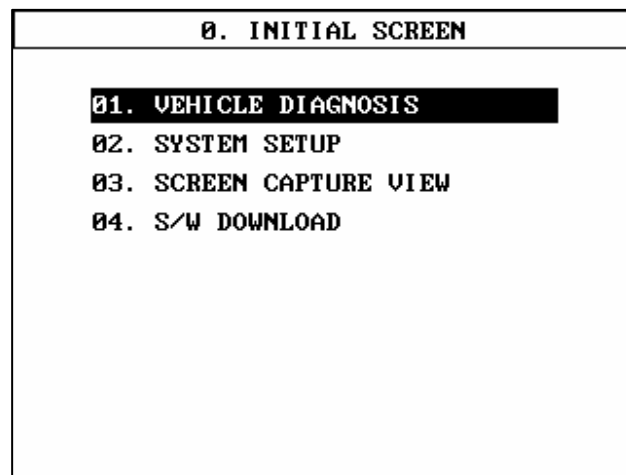


Figure 2.2 Initial Screen

01. Vehicle Diagnosis

- This menu provides scanner's own functionality such as vehicle diagnosis, Current Data search, actuator activation, etc.
Depending on your option, you can perform diagnosis on Korean, Japanese, or European vehicles.

02. System Setup

- This provides sub-menus such as System Configuration, Data Setup, Keypad Test, Contrast Adjust Screen, and Battery Status.

03. Screen Capture View

- You can capture screens and view them when needed.

04. S/W Download

- This enables you to connect the download program to upgrade the Carmanscan Lite software.

Chapter 3: System Setup

1. System Configuration

This provides system specifications.

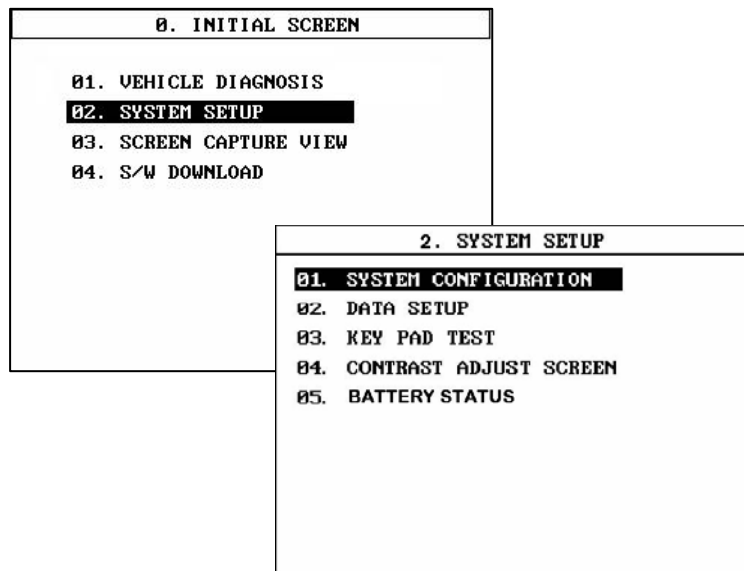


Figure 3.1 System Configuration 1

1. At the initial screen, select System Setup and press Enter.
2. Select System Configuration and press Enter.

| SYSTEM CONFIGURATION | |
|----------------------|---------------------|
| SERIAL NO | : CGC-S0021 |
| MAIN PROGRAM VER. | : CM0770ENG20070710 |
| TOTAL MEMORY SIZE | : 256 MBYTE |
| USED MEMORY SIZE | : 42 MBYTE |
| TPMS INSTALLATION | : EXIST |

Figure 3.2 System Configuration 2

- ☞ Serial No : Displays the product serial number.
- ☞ Main Program Ver. : Displays the version of the main program installed in the product.

Chapter 3: System Setup

- ☞ Total Memory Size : Displays the total memory size of the product.
Default is 256Mbyte.
 - ☞ Used Memory Size : Displays the memory currently used out of total memory.
 - ☞ TPMS Installation : Displays whether TPMS diagnosis feature is installed.
3. Pressing Esc at the System Configuration screen will go back to Initial Screen.

Chapter 3: System Setup

2. Data Setup

You can change system configuration to your own use.

- You can change or view sound, language, unit, and LF intensity.

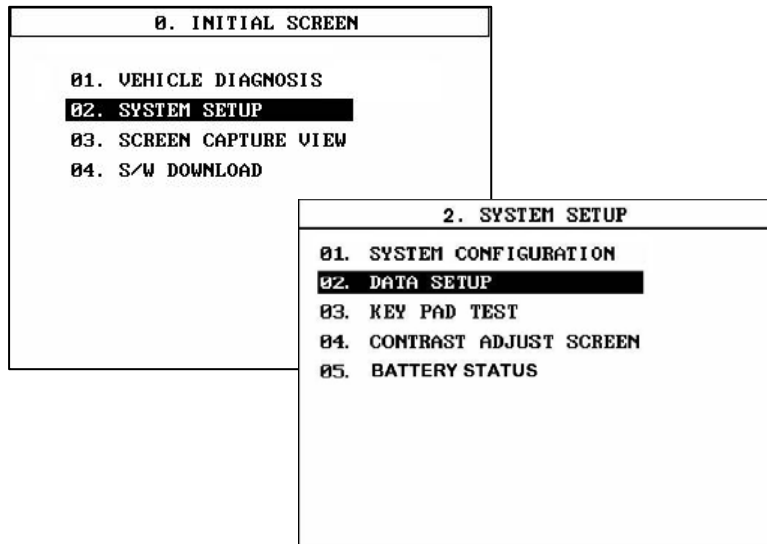


Figure 3.3 Data Setup 1

1. At the Initial Screen select System Setup and press Enter.
2. Select Data Setup and press Enter.

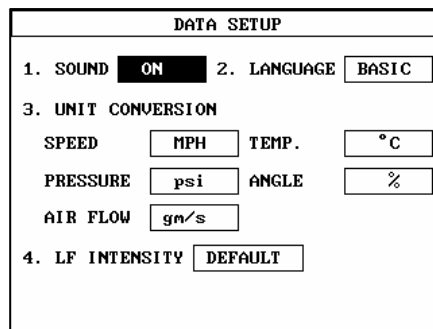


Figure 3.4 Data Setup 2

☞ Sound : Turns on/off sound effect.

☞ Language : BASIC / LOCAL

– BASIC : Displays screen in the built-in language of the system.

– LOCAL : Only the product that has the program for export by KIA displays German rather than English.

Chapter 3: System Setup

**TIPS) Only the KIA export version provides German/English option.
Other products for domestic and overseas market have no difference
in BASIC/LOCAL.**

- ☞ Unit Conversion : You can convert the unit that is displayed when you see a Current Data item.
 - Speed : Converts Km/h to MPH and vice versa.
 - Temperature : Converts °C to °F and vice versa.
 - Pressure : You can choose one of Chmbar, kPa, mmHg, inHg, and psi.
 - Angle : Converts degree (°) to percent (%) and vice versa.
 - Air Flow : Converts gm/s to lb/m and vice versa.
- ☞ LF INTENSITY : This adjusts communication sensitivity in the system that has TPMS option.
You can choose one of DEFAULT, WEAK, MIDDLE, and STRONG.

*** See next chapter for how to setup data.**

Chapter 3: System Setup

- **How to setup data**

1. Move to the item you want to change using the left/right arrows (◀, ▶).
2. When the cursor is placed on the item you want to change, use the up/down arrows (▲, ▼) to change the unit.
3. Pressing ESC will save the changes and go back to the System Setup screen (**Figure 3.8**).

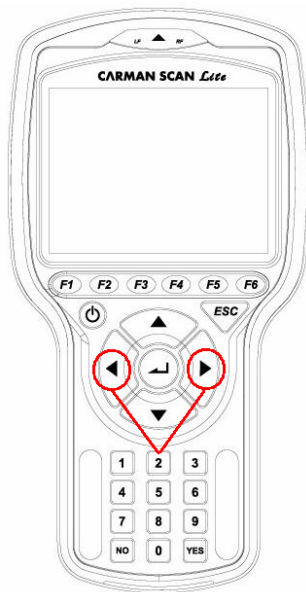


Figure 3.5 Selecting Item

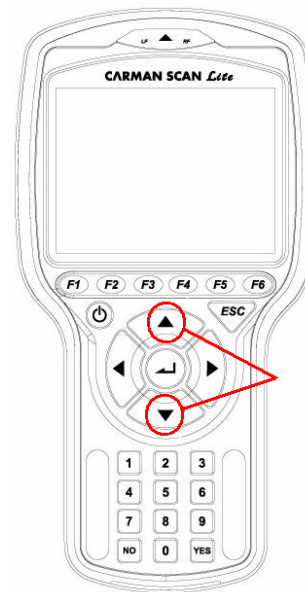
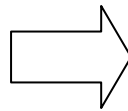


Figure 3.6 Selecting Measurement Unit

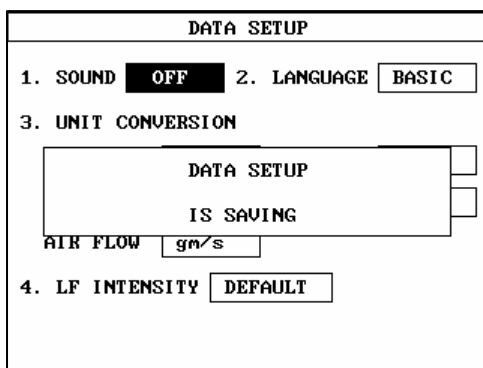


Figure 3.7 Saving Data Setup

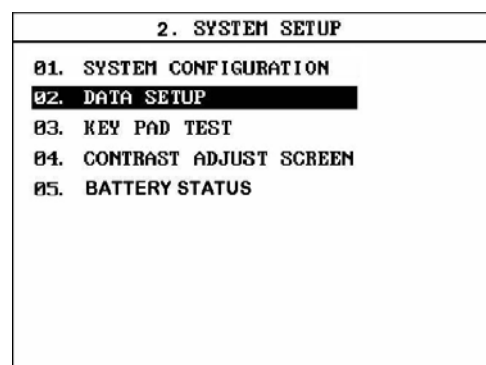


Figure 3.8 System Setup Screen

Chapter 3: System Setup

3. Key Pad Test

This menu performs self-diagnosis on the key pad to see if it is normal.

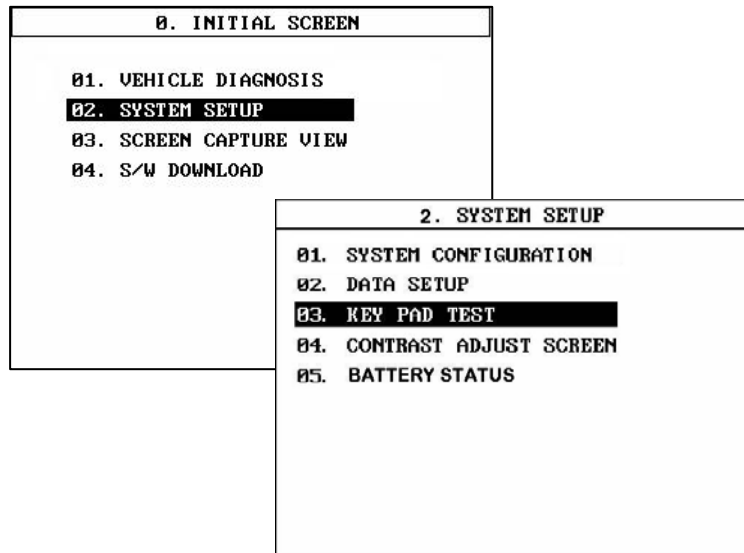


Figure 3.9 Key Pad Test 1

1. At the Initial Screen, select System Setup and press Enter.
2. Select Key Pad Test and press Enter.

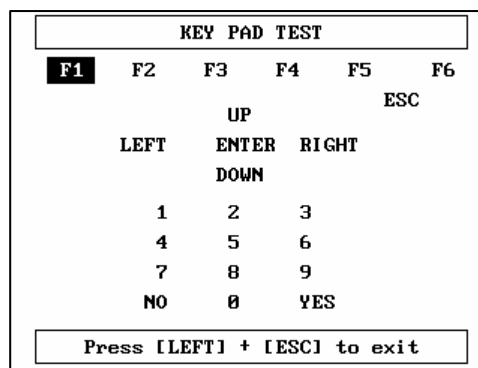


Figure 3.10 Key Pad Test 2

3. Click the button you want to test.
 - Pressing the button will display a shadow on it.
4. Once you have done the tests, press Left and ESC at the same time to escape from this menu.
5. Returns to the System Setup screen (**Figure 3.9**).

Chapter 3: System Setup

4. Contrast Adjust Screen

This menu enables you to adjust the brightness of the LCD screen.

- Adjusting the screen brightness, you can secure visual recognition.

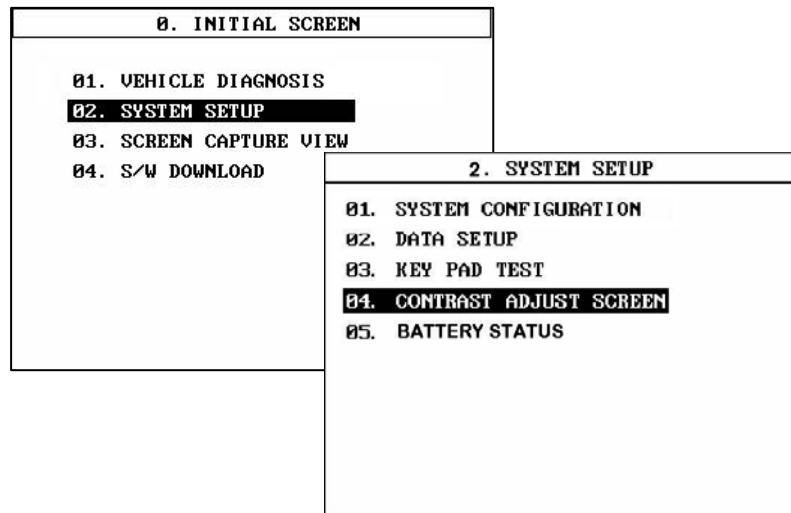


Figure 3.11 Contrast Adjust Screen 1

1. At the Initial Screen, select System Setup and press Enter.
2. Select Contrast Adjust Screen and press Enter.

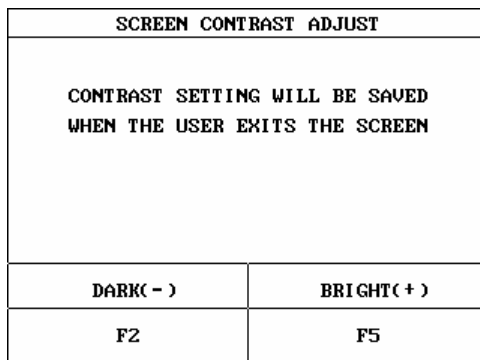


Figure 3.12 Contrast Adjust Screen 2

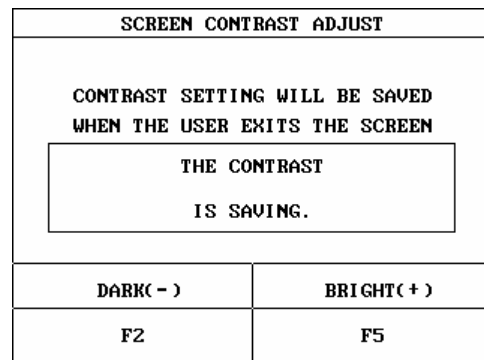
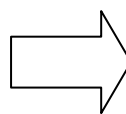


Figure 3.13 Contrast Adjust Screen 3

3. As you see in the above, press F2 if you want to adjust the screen darker or press F5 if you want to adjust the screen brighter step by step.
4. Once you finished screen adjustment, press ESC to save the settings and go back to the System Setup screen (**Figure 3.11**).

Chapter 3: System Setup

5. Battery Status

You can check battery status.

- You can see how much is remaining in the battery installed in the product.

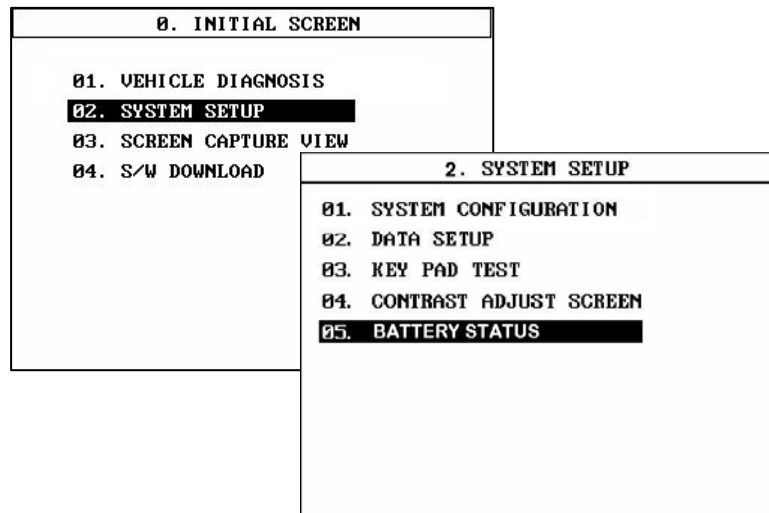


Figure 3.14 Battery Status 1

1. At the Initial Screen, select System Setup and press Enter.
2. Select Battery Status and press Enter.

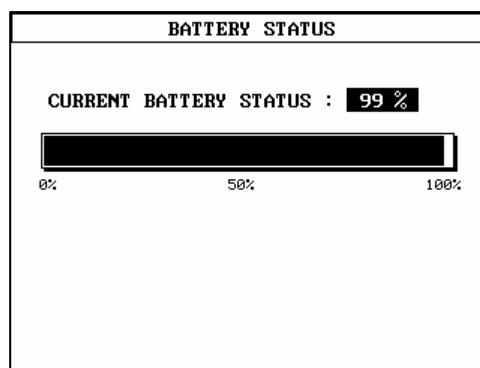


Figure 3.15 Battery Status 2

3. Once you have finished checking Battery Status press ESC to go back to the System Setup screen (**Figure 3.14**).

Chapter 4: Screen Capture View

Screen Capture enables you to save captured screens and reload and view them when needed.

1. Screen Capture

Captures screens you want to save.

TIP) You can save up to 7 screens, and if you continue saving more screens they will overwrite the previous ones.

What you have saved is stored in the internal memory of Carmanscan Lite.

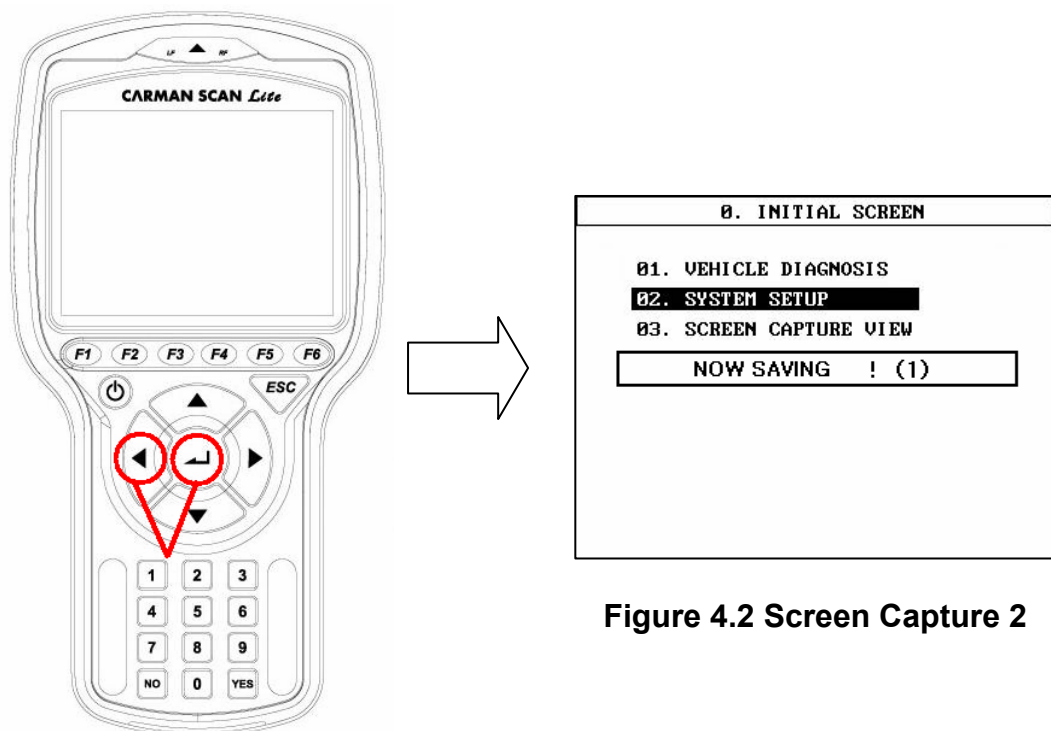


Figure 4.1 Screen Capture 1

Figure 4.2 Screen Capture 2

1. If you want to save a screen, press the left arrow and Enter at the same time.
2. A message “Now Saving!” displays and the screen is saved.

Chapter 4: Screen Capture View

2. Screen Capture View

This provides a view to captured screens.

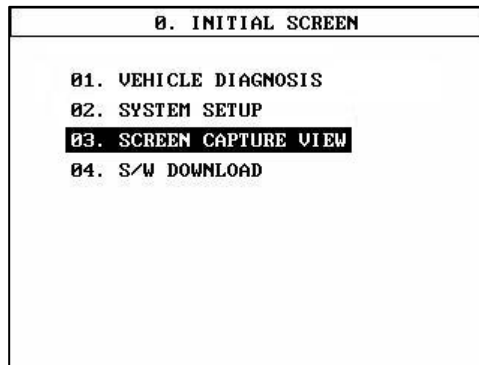


Figure 4.3 Screen Capture View1

1. At the Initial Screen, select Screen Capture View.
2. Capture screens will display on LCD.

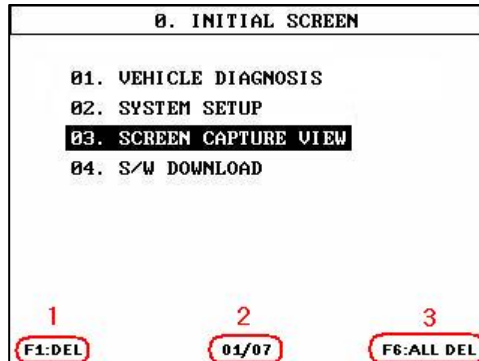


Figure 4.4 Screen Capture View2

1. F1 : DEL - Pressing F1 will delete current screen.
2. 01/07 – 07 means the total captured screens and 01 means the first of 7.
3. F6 : ALL DEL – Deletes all captured screens.
4. Using ▲ / ▼ keys on the main body of Carmanscan Lite, you can switch screens.

Chapter 5: S/W Download

Carmanscan Lite has a built-in diagnosis program that is upgraded when a new car is released or a new specification is added by face lift, etc.

At this time you can update the diagnosis program by accessing NexTech website after you connect Carmanscan Lite with your PC.

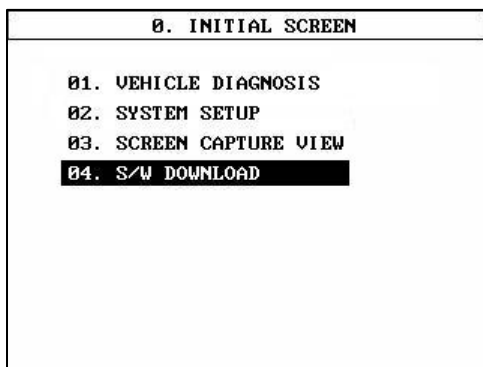


Figure 5.1 S/W Download 1

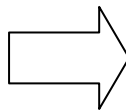


Figure 5.2 S/W Download 2

1. At the Initial Screen, select S/W DOWNLOAD and press Enter.
2. S/W DOWNLOAD menu will open.
3. From you PC, run the Carmanscan Lite upgrade program.
4. Perform Program Download.

TIPS) To use S/W DOWNLOAD, you must sign up as a member at Nextech website and install the upgrade program.

For further details of S/W DOWNLOAD, see Appendix.

Chapter 6: Selecting Diagnosis Menu

1. Connecting Self Diagnosis Connector and Selecting Diagnosis Program (Common to Korean/Japanese/European Vehicles)

1. Locate the diagnosis connector in the car.
 - Most cars released after 2002 conforms to OBD-II Protocol and have OBD-II diagnosis connectors.
 - Most OBD-II vehicles have their diagnosis connectors over the brake pedal under the driver seat steering wheel (**Figure 6.1**).
 - If an additional adaptor is required, the scanner display shows the type of adaptor and where the diagnosis connector to be installed (**Figure 6.2**).



Figure 6.1 OBD-II Location of Diagnosis Connector

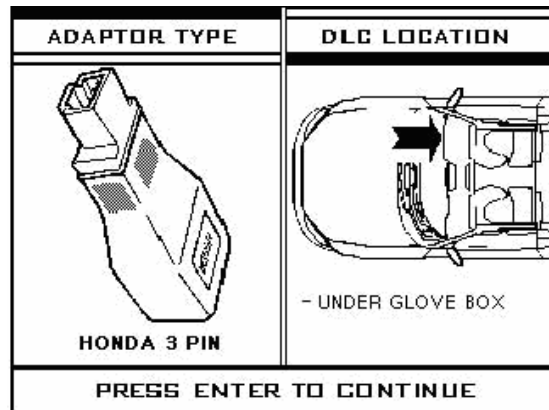


Figure 6.2 Adaptor Type and DLC Location Guide Screen

2. Use the diagnosis cable to connect the vehicle's DLC and CarmanScan Lite.

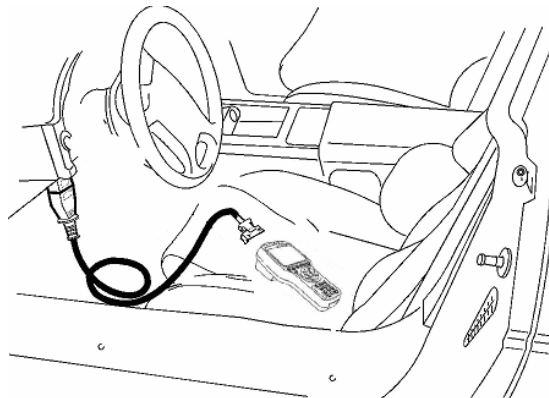


Figure 6.3 Connecting Diagnosis Cable

Chapter 6: Selecting Diagnosis Menu

3. Power on Carmanscan Lite.
 - If the power is not fed through the diagnosis connector and if the Carmanscan Lite battery is not full charged, you have to connect an additional power supply (car battery or cigar cable, etc)
4. Select the corresponding diagnosis pack (country menu) at the Vehicle Diagnosis menu and press Enter (**Figure 6.4**).

| 1. VEHICLE DIAGNOSIS | | |
|----------------------|--------------------------|--------|
| 01. | EUROPEAN | 771ENG |
| 02. | DAEWOO SSANGYONG SAMSUNG | 771ENG |
| 03. | HOL_FORD | 771ENG |
| 04. | USA | 771ENG |
| 05. | HYUNDAI | 771ENG |
| 06. | JAPAN | 771ENG |
| 07. | KIA | 771ENG |
| INFO | | |

Figure 6.4 Vehicle Diagnosis Pack1

5. Details of diagnosis packs (country menu) will be provided in the next chapter.



When you are diagnosing a car, be sure to place the starter key on "IGNITION ON." If the starter key is placed on "OFF," no power is fed to ECU and thus Carmanscan Lite and diagnosis will not work.

* **INFO**

Press F1 to see the diagnosis pack information.

| S/W INFORMATION | |
|---------------------------|---------------------|
| TYPE | : DIAGNOSIS VEHICLE |
| TITLE | : EUROPEAN |
| < INTERNAL MEMORY INFO > | |
| VERSION | : EU0771ENG20071002 |
| MEMORY SIZE | : 4 / 265M |
| NEXT : F1 RETURN : ESC | |

Figure 6.5 S/W Information 1

| S/W INFORMATION | |
|-------------------------|---------------------|
| TYPE | : DIAGNOSIS VEHICLE |
| TITLE | : EUROPEAN |
| < TSP INFO > | |
| VERSION | : NOT FOUND |
| MEMORY SIZE | : 0 / 265M |
| PRESS ANY KEY TO RETURN | |

Figure 6.6 S/W Information 2 (F1 key)

Chapter 6: Selecting Diagnosis Menu

2. Diagnosing Korean Vehicles

You can diagnose cars of 5 Korean car makers (Hyundai, Kia, Daewoo, Samsung, Ssangyong).

1. Select the corresponding vehicle diagnosis pack and press Enter.
2. Select diagnosis menu by vehicle type and press Enter.

| 1. VEHICLE DIAGNOSIS | |
|------------------------------|---------------|
| 01. EUROPEAN | 771ENG |
| 02. DAEWOO SSANGYONG SAMSUNG | 771ENG |
| 03. HON_FORD | 771ENG |
| 04. USA | 771ENG |
| 05. HYUNDAI | 771ENG |
| 06. JAPAN | 771ENG |
| 07. KIA | 771ENG |

INFO

Figure 6.7 Selecting Vehicle Diagnosis Pack

| 0. INITIAL SCREEN | |
|--------------------------------------|--|
| 01. HYUNDAI VEHICLE DIAGNOSIS | |
| 02. CARB OBD-II DIAGNOSIS | |
| 03. FLIGHT RECORD REVIEW | |

Figure 6.8 Selecting Vehicle Type Diagnosis

3. Select the vehicle you want to diagnose and press Enter.
4. Select the system you want to diagnose and press Enter.

| 1. HYUNDAI VEHICLE DIAGNOSIS | | | |
|------------------------------|-------|-----------------|-------|
| 21. SONATA | 99-04 | 31. H-100TRUCK | 04-07 |
| 22. SONATA | 94-98 | 32. H-100TRUCK | 97-03 |
| 23. SONATA | 89-93 | 33. H-1 | 98-07 |
| 24. XG | 99-05 | 34. H-1 TRUCK | 01-07 |
| 25. MARCIA | 96-98 | 35. SANTAFEX CM | 06-07 |
| 26. CENTENNIAL | 00-07 | 36. SANTAFE | 01-05 |
| 27. GRANDEUR(TG) | | 37. TRAJET XG | 01-07 |
| 28. GRANDEUR | 94-98 | 38. TAXI | 94-01 |
| 29. GRANDEUR | 89-93 | 39. VERACRUZ | 07- |
| 30. H-100 | 94-01 | 40. TERRACAN | 01-07 |

Figure 6.9 Selecting Vehicle Type

| 1. HYUNDAI VEHICLE DIAGNOSIS ▼ | |
|--------------------------------|--------------|
| MODEL : | GRANDEUR(TG) |
| 01. ENGINE(GASOLINE) | |
| 02. ENGINE(DIESEL) | |
| 03. AUTOMATIC TRANSAXLE | |
| 04. ABS/ESP | |
| 05. SRS-AIRBAG | |
| 06. IMMOBILIZER | |
| 07. ELEC.POWER STEERING | |
| 08. FULL AUTO AIR/CON. | |

Figure 6.10 Selecting System

Chapter 6: Selecting Diagnosis Menu

3. Diagnosing Japanese Vehicles (General)

You can diagnose vehicles made by Japanese leading manufacturers such as Toyota, Honda, Nissan, and Mitsubishi.

1. Select the vehicle diagnosis pack you want (country menu) and press Enter.
2. Select "JAPANESE VEHICLE DIAGNOSIS" and press Enter.

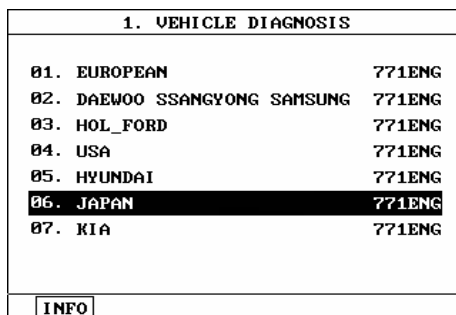


Figure 6.12 Selecting Vehicle Diagnosis Pack Figure

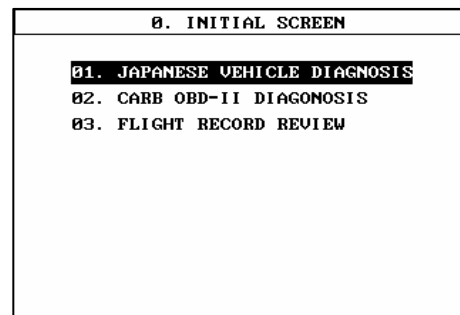


Figure 6.13 Selecting Diagnosis by Vehicle Type

3. Select the car maker and press Enter.
4. Select the car and press Enter.

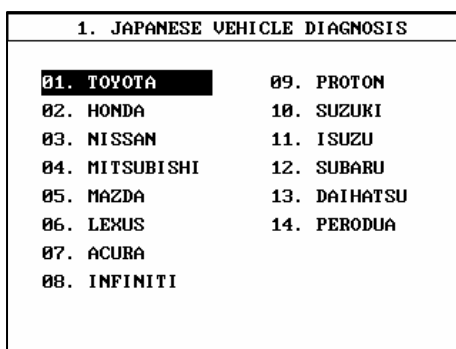


Figure 6.14 Selecting Vehicle Maker

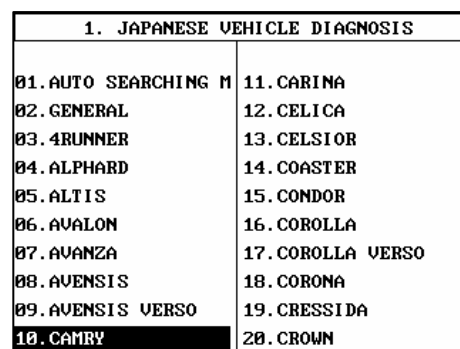


Figure 6.15 Selecting Vehicle

Chapter 6: Selecting Diagnosis Menu

5. Select the vehicle system you want to diagnose and press Enter.

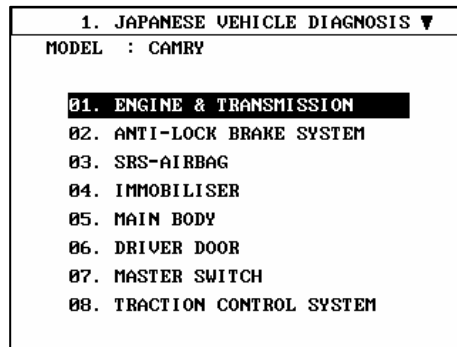


Figure 6.16 Selecting Vehicle System

Chapter 6: Selecting Diagnosis Menu

4. Diagnosing Japanese Vehicles (AUTO SEARCHING MODE)

You can diagnose only the modules (Engine, Auto Transmission, ABS, Air Bag, etc) that correspond to all ECU communication attempts.

1. Select the vehicle diagnosis pack (country menu) and press Enter.
2. Select "JAPANESE VEHICLE DIAGNOSIS" and press Enter.

| 1. VEHICLE DIAGNOSIS | |
|------------------------------|---------------|
| 01. EUROPEAN | 771ENG |
| 02. DAEWOO SSANGYONG SAMSUNG | 771ENG |
| 03. HOL_FORD | 771ENG |
| 04. USA | 771ENG |
| 05. HYUNDAI | 771ENG |
| 06. JAPAN | 771ENG |
| 07. KIA | 771ENG |

INFO

Figure 6.17 Selecting Vehicle Diagnosis Pack

| 0. INITIAL SCREEN | |
|---------------------------------------|--|
| 01. JAPANESE VEHICLE DIAGNOSIS | |
| 02. CARB OBD-II DIAGNOSIS | |
| 03. FLIGHT RECORD REVIEW | |

Figure 6.18 Selecting Diagnosis by Vehicle Type

3. Select the car maker and press Enter.
4. Select "AUTO SEARCHING MODE" and press Enter.

| 1. JAPANESE VEHICLE DIAGNOSIS | |
|-------------------------------|--------------|
| 01. TOYOTA | 09. PROTON |
| 02. HONDA | 10. SUZUKI |
| 03. NISSAN | 11. ISUZU |
| 04. MITSUBISHI | 12. SUBARU |
| 05. MAZDA | 13. DAIHATSU |
| 06. LEXUS | 14. PERODUA |
| 07. ACURA | |
| 08. INFINITI | |

Figure 6.19 Selecting Vehicle Maker

| 1. JAPANESE VEHICLE DIAGNOSIS | |
|--------------------------------|-------------------|
| 01. AUTO SEARCHING MODE | 11. CARINA |
| 02. GENERAL | 12. CELICA |
| 03. 4RUNNER | 13. CELSIOR |
| 04. ALPHARD | 14. COASTER |
| 05. ALTIS | 15. CONDOR |
| 06. AVALON | 16. COROLLA |
| 07. AVANZA | 17. COROLLA VERSO |
| 08. AVENSIS | 18. CORONA |
| 09. AVENSIS VERSO | 19. CRESSIDA |
| 10. CAMRY | 20. CROWN |

Figure 6.20 Auto Searching Mode

Chapter 6: Selecting Diagnosis Menu

7. Select the vehicle diagnosis connector type and press Enter.
8. Carmanscan Lite tries to communicate with all possible systems to find the modules that respond.

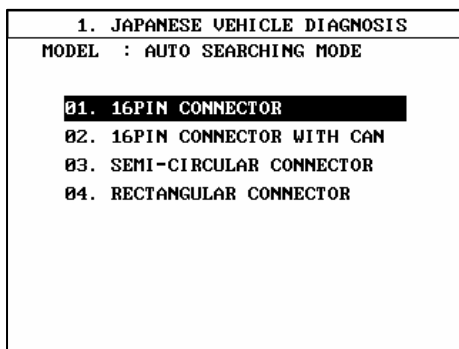


Figure 6.21 Selecting Vehicle Diagnosis Connector Type

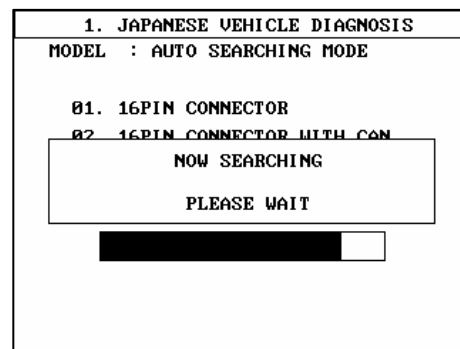
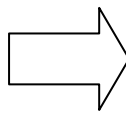


Figure 6.22 Searching for Module

9. All modules that can be diagnosed will be displayed.

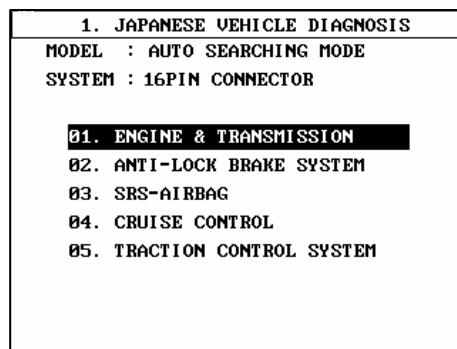


Figure 6.23 Modules to be Diagnosed

* Selecting Connector Type (In case of Toyota / LEXUS in common)

1. 16PIN CONNECTOR : Ordinary OBD-II connector
2. 16PIN CONNECTOR WITH CAN : OBD-II connector of vehicles with built-in CAN
3. SEMI-CIRCULAR CONNECTOR : Toyota 17pin-C type connector
4. RECTANGULAR : Toyota 17pin-R type connector

TIPS) Vehicle diagnosis connectors are displayed by car makers.

Chapter 6: Selecting Diagnosis Menu

5. Diagnosing Japanese Vehicles (GENERAL MODE)

You can try to communicate with each system of the car maker using the standard protocol. Except special cases, Japanese vehicles can communicate in General Mode

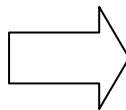
without burden of having to select the vehicle.

1. Select the vehicle diagnosis pack (country menu) and press Enter.
2. Select GENERAL and press Enter.

| 1. VEHICLE DIAGNOSIS | |
|------------------------------|---------------|
| 01. EUROPEAN | 771ENG |
| 02. DAEWOO SSANGYONG SAMSUNG | 771ENG |
| 03. HOL_FORD | 771ENG |
| 04. USA | 771ENG |
| 05. HYUNDAI | 771ENG |
| 06. JAPAN | 771ENG |
| 07. KIA | 771ENG |

INFO

Figure 6.24 Selecting Vehicle Diagnosis Pack Figure



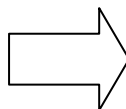
| 0. INITIAL SCREEN | |
|---------------------------------------|--|
| 01. JAPANESE VEHICLE DIAGNOSIS | |
| 02. CARB OBD-II DIAGNOSIS | |
| 03. FLIGHT RECORD REVIEW | |

Figure 6.25 Selecting Diagnosis by Vehicle Type

3. Select the car maker and press Enter.
4. Select "GENERAL" and press Enter.

| 1. JAPANESE VEHICLE DIAGNOSIS | |
|-------------------------------|--------------|
| 01. TOYOTA | 09. PROTON |
| 02. HONDA | 10. SUZUKI |
| 03. NISSAN | 11. ISUZU |
| 04. MITSUBISHI | 12. SUBARU |
| 05. MAZDA | 13. DAIHATSU |
| 06. LEXUS | 14. PERODUA |
| 07. ACURA | |
| 08. INFINITI | |

Figure 6.26 Selecting Vehicle Maker



| 1. JAPANESE VEHICLE DIAGNOSIS | |
|-------------------------------|-------------------|
| 01. AUTO SEARCHING M | 11. CARINA |
| 02. GENERAL | 12. CELICA |
| 03. 4RUNNER | 13. CELSIOR |
| 04. ALPHARD | 14. COASTER |
| 05. ALTIS | 15. CONDOR |
| 06. AVALON | 16. COROLLA |
| 07. AVANZA | 17. COROLLA VERSO |
| 08. AUENSIS | 18. CORONA |
| 09. AUENSIS VERSO | 19. CRESSIDA |
| 10. CAMRY | 20. CROWN |

Figure 6.27 General Mode

Chapter 6: Selecting Diagnosis Menu

5. Select the system you want to diagnose and press Enter.
6. Select the vehicle diagnosis connector type and press Enter.

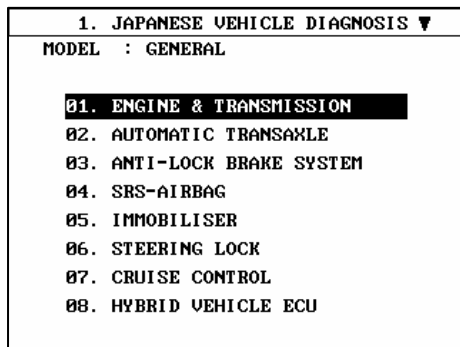


Figure 6.28 Selecting Diagnosis System Figure

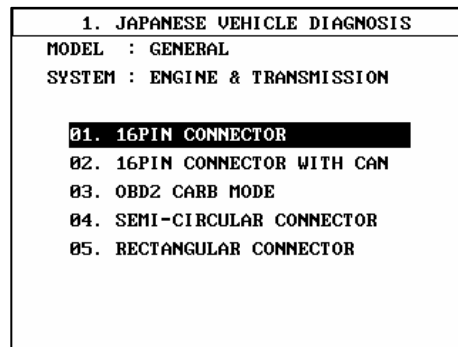
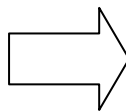


Figure 6.29 Selecting Vehicle Diagnosis Connector Type

TIPS) AUTO SEARCHING MODE and GENERAL MODE are introduced to Japanese Vehicle Menu only, which is useful when there is no vehicle name but car maker or if you want to search for diagnosable items at a time.

Chapter 6: Selecting Diagnosis Menu

6. Diagnosing European Vehicles

You can diagnose vehicles made by leading European car makers such as BMW, BENZ, AUDI, VW, etc.

1. Select the vehicle diagnosis pack (country menu) and press Enter.
2. Select "EUROPEAN VEHICLE DIAGNOSIS" and press Enter.

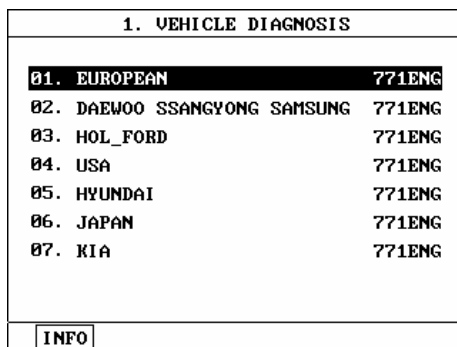


Figure 6.30 Selecting Vehicle Diagnosis Pack

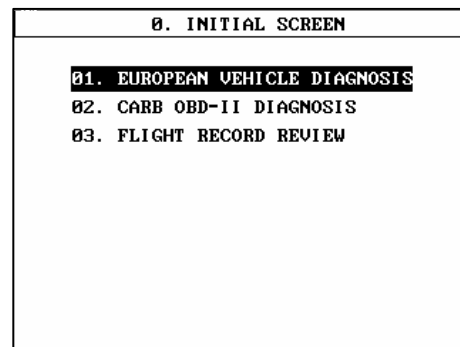


Figure 6.31 Selecting Diagnosis by Vehicle Type

3. Select the car maker and press Enter.
4. Select the system you want to diagnose and press Enter.

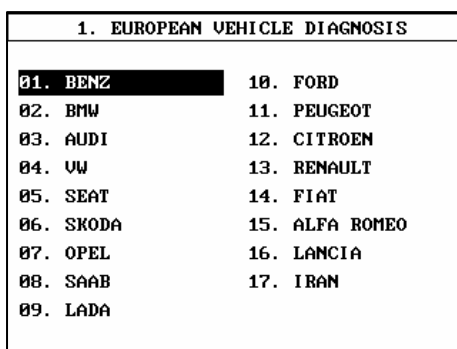


Figure 6.32 Selecting Vehicle Maker

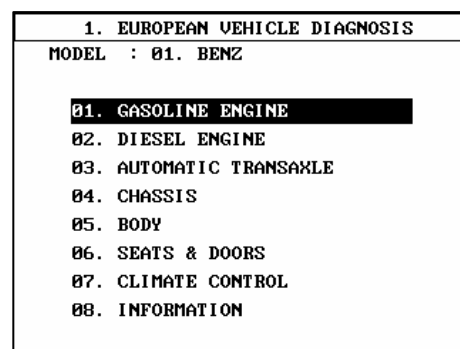


Figure 6.33 Selecting System

Chapter 6: Selecting Diagnosis Menu

7. Select the type of system you want to diagnose and press Enter.

```
1. EUROPEAN VEHICLE DIAGNOSIS ▼
MODEL : 01. BENZ
SYSTEM : GASOLINE ENGINE

01. 4 CYL ME, PMS, HFM
02. 6 CYL ME, PMS, HFM, LH
03. V6 CYL ME, HFM, LH
04. V8 CYL ME, LH
05. V12 CYL ME1RE, LH1, ME
06. V12 CYL ME1LI, LH2
07. V6 CYL ME2.8
08. V8 CYL ME2.8
```

Figure 6.34 Selecting Diagnosis System



If you select a wrong system, communication may fail or wrong data may be displayed.

Chapter 7: Vehicle Diagnosis

1. Diagnostic Trouble Codes

- Diagnostic Trouble Codes enable you to check if the chosen vehicle system is Abnormal and where the trouble is by returning Diagnostic Trouble Codes. In addition, Diagnostic Trouble Code Help is provided (only for Korea vehicles) to help you repair your car.

TIPS) To view Diagnostic Trouble Codes you must correctly connect the vehicle diagnosis connector and Carmanscan Lite. Referring to “Chapter 6: Selecting Diagnosis Menu”, make sure that the connection is correct, and check the car maker and vehicle name, engine displacement, and other specifications again.

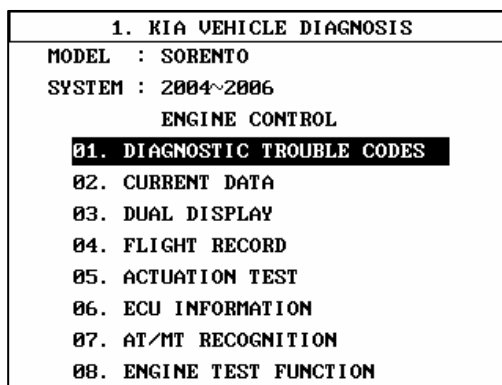


Figure 7.1 Selecting Diagnostic Trouble Codes

NOTE) Figure 7.1 Diagnostic Trouble Codes menu may differ with car makers or car types.

1. Select the correct vehicle and system at the Vehicle Diagnosis menu. If communication with the vehicle succeeds, the menu as shown in **Figure 7.1** will be displayed. Select the trouble code and press Enter.

TIPS) If the menu as shown in Figure 7.1 does not appear, and a message "Communication Fail" displays or communication fails, recheck if the vehicle and diagnosis connector connections are normal.

Chapter 7: Vehicle Diagnosis

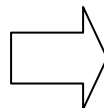
| 1.1 DIAGNOSTIC TROUBLE CODES | |
|------------------------------|----------------------------|
| P0132 | O2 SNSR-HIGH VOLT.(B1/S1) |
| P0135 | O2S HEATER CIRCUIT(B1/S1) |
| P0136 | O2 SNSR CIRCUIT-MAL(B1/S2) |
| P0139 | O2 SNSR SLOW RESPO.(B1/S2) |
| P0140 | O2 SNSR NO ACTIVITY(B1/S2) |
| NUMBER OF DTC : 5 ITEMS | |
| ERAS | DTAL |

Figure 7.2 Diagnostic Trouble Codes

- If the vehicle system has a trouble, a diagnostic trouble code as shown in **Figure 7.2 Diagnostic Trouble Codes** will be displayed.
- If Diagnostic Trouble Codes are displayed, place the cursor on the corresponding Diagnostic Trouble Code and press the “ERAS” (F2) key at the bottom of the screen to clear the code.

| 1.1 DIAGNOSTIC TROUBLE CODES | |
|------------------------------|---------------------------------|
| P0132 | O2 SNSR-HIGH VOLT.(B1/S1) |
| P0135 | O2S HEATER CIRCUIT(B1/S1) |
| P0136 | O2 SNSR CIRCUIT-MAL(B1/S2) |
| P01: | ARE YOU SURE ? [Y/N] |
| P01: | (CONDITION : KEY ON,ENGINE OFF) |
| NUMBER OF DTC : 5 ITEMS | |
| ERAS | DTAL |

Figure 7.3 Diagnostic Trouble Code_Erase 1



| 1.1 DIAGNOSTIC TROUBLE CODES | |
|------------------------------|--|
| NO TROUBLE CODE | |
| NUMBER OF DTC : 0 ITEMS | |

Figure 7.4 Diagnostic Trouble Code_Erase 2

- Place the cursor on Diagnostic Trouble Codes and press “DTAL” (F4) to view details of the code.



To erase Diagnostic Trouble Codes, follow the procedure as shown in Figure 7.3 Diagnostic Trouble Code_Erase. If the erase procedure is not followed, Diagnostic Trouble Codes may not be cleared.

- To go back to Vehicle Diagnosis, press ESC.

Chapter 7: Vehicle Diagnosis

TIPS) Diagnostic Trouble Codes have two types: the past diagnostic trouble codes and the present diagnostic trouble code. If the diagnostic trouble code is past one it will immediately be removed and will not reappear, but if the code is present one it will be cleared temporarily but reappear soon. In this case, you need to clear the trouble code again after you check the part that caused the diagnostic trouble code and repair the part.

Chapter 7: Vehicle Diagnosis

2. Current Data

- Current Data enables you to check current status of each sensor data, switch, and actuator of the chosen car system through communication with ECU.

TIPS) To take measure of correct current data, you need to select correct car specifications such as engine displacement, release year, fuel, etc. Even when the same car responds to communication, details of current data may differ.

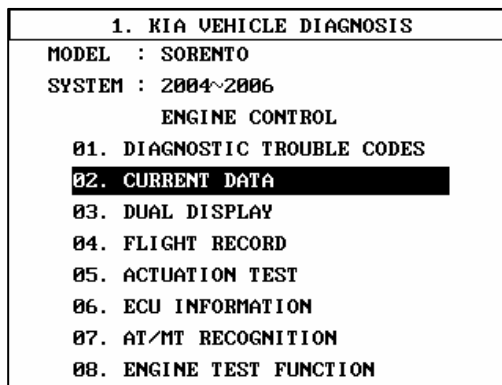


Figure 7.5 Selecting Current Data

NOTE) Figure 7.5 Current Data selection menu screen may differ with car makers or car types.

1. If you choose correct vehicle and system at the Vehicle Diagnosis menu and communication with the vehicle is made successfully, the menu as shown in **Figure 7.5** will be displayed.
Select Current Data and press Enter.

TIPS) If the menu shown in Figure 7.5 does not appear and a message "Communication Fail" appears, check again if the car and DLC connector connections are normal.

Chapter 7: Vehicle Diagnosis

| 1.2 CURRENT DATA | |
|-----------------------|----------------|
| INJECTOR | 32.6 ms |
| IGN ADVANCE | 63.5 ° |
| IAC STEP POS | 255 step |
| IAC DUTY RATIO | 99.7 % |
| CALCULAT.LOAD VALUE. | 99.0 % |
| MASS AIR FLOW | 655.3gm/s |
| MANIFOLD AIR PRESSURE | 36 psi |
| ENGINE SPEED | 16383rpm |

FIX SCRN FULL GRPH RCRD

Figure 7.6 Current Data

2. As shown in **Figure 7.6** Current Data will be displayed on the screen.

TIPS) A screen can display total of 8 Current Data items. You can scroll to items you want using the ▲ / ▼ buttons. Pressing the ▼ button at the final current data will go back to the first item.

3. If you want to view details of a current data item, place the cursor on it and press the **FIX** (F1) button to view the fixed item and hide unfixed items. At the side of the fixed item, * will be displayed.

| 1.2 CURRENT DATA | |
|-----------------------|----------------|
| * INJECTOR | 32.6 ms |
| * IGN ADVANCE | 63.5 ° |
| * IAC STEP POS | 255 step |
| IAC DUTY RATIO | |
| CALCULAT.LOAD VALUE. | |
| MASS AIR FLOW | |
| MANIFOLD AIR PRESSURE | |
| ENGINE SPEED | |

FIX SCRN FULL GRPH RCRD

Figure 7.7 Current Data_FIX

TIPS) If you use the Fix menu only the fixed items change their values, which make you diagnose the changing values more quickly and correctly.

Chapter 7: Vehicle Diagnosis

4. Pressing the **FULL** (F3) key will display 22 current data items in one screen.

At this time you can see more items than the 22 by pressing the ▲ / ▼ buttons.

| 1.2 CURRENT DATA | | | |
|------------------|-----------|------------|---------|
| INJECTOR | 32.6 ms | THROTTLE P | 99.0 % |
| IGN ADVANC | 63.5 ° | IDLE SIGN | ON |
| IAC STEP P | 255 step | VEHICLE SP | 158 MPH |
| IAC DUTY P | 99.7 % | SECONDARY | ON |
| CALCULAT. P | 99.0 % | O2S B1 S1 | 1.275V |
| MASS AIR P | 655.3gm/s | O2S B1 S2 | 1.275V |
| MANIFOLD P | 36 psi | O2S B1 S3 | 1.275V |
| ENGINE SPE | 16383rpm | O2S B1 S4 | 1.275V |
| COOLANT TE | 215 °C | O2S B2 S1 | 1.275V |
| INTAKE AIR | 215 °C | O2S B2 S2 | 1.275V |
| INJECTOR | | | |

Figure 7.8 Current Data_FULL

TIPS) Using full features will delay communication of changing values of all items and thus data refresh rate will be lowered.

5. Pressing the **SCRN** (F2) key will display only the first two of the displayed item.

| 1.2 CURRENT DATA | |
|----------------------|-------|
| P/N SWITCH | DRIVE |
| STABIL COMBUST SNSR | OPEN |
| MAIN RELAY(FP) | |
| A/C CLUTCH | |
| MIL LAMP | |
| IDLE AIR CONTROL SOL | |
| MOUNT CONTROL SOL | |
| ECT SENSOR | |
| ▲ | |
| ▼ | |
| FIX | SCRN |
| FULL | GRPH |
| | RCRD |

Figure 7.9 Current Data_SCRN

Chapter 7: Vehicle Diagnosis

- If you want to view Current Data in a graph, press the **FIX** (F1) key to fix the items you want (**Figure 7.7 Current Data_FIX**) and press the **GRPH** (F5) key to display chosen current data in a graph.

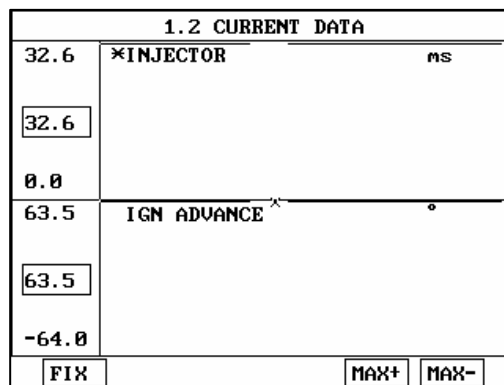


Figure 7.10 Current Data_GRPH

- In the screen shown in **Figure 7.10**, you can press the **FIX** (F1) key to fix the chosen item and press the **▲ / ▼** button to choose the remaining one that is not fixed. At this time, the current data items that you can choose are those fixed in **Figure 7.7**.
- The values displayed at the left of the screen in **Figure 7.10** are the Maximum /minimum of the graph displayed in the screen, which you can change by pressing the **MAX+** (F5) / **MAX-** (F6) key. According to the values changed the graph will become larger or smaller.
- To return to the Vehicle Diagnosis menu press ESC.

Chapter 7: Vehicle Diagnosis

10. If you want to save data, press the **RCRD** (F6) key in the current data screen (**Figure 7.11 Data Recording 1**)
11. Place the cursor on what you want to save and press the **FIX** (F1) key to select the item (**Figure 7.12 Data Recording 2**)
12. After you have chosen items, press the **RCRD** (F6) key (**Figure 7.17 Data Recording 2**).

| 1.2 CURRENT DATA | |
|-----------------------|-----------|
| INJECTOR | 32.6 ms |
| IGN ADVANCE | 63.5 ° |
| IAC STEP POS | 255 step |
| IAC DUTY RATIO | 99.7 % |
| CALCULAT.LOAD VALUE. | 99.8 % |
| MASS AIR FLOW | 655.3gm/s |
| MANIFOLD AIR PRESSURE | 36 psi |
| ENGINE SPEED | 16383rpm |

FIX SCRNI FULL GRPH RCRD

Figure 7.11 Data Recording 1

| 1.2 CURRENT DATA | |
|-----------------------|----------|
| * INJECTOR | 32.6 ms |
| * IGN ADVANCE | 63.5 ° |
| * IAC STEP POS | 255 step |
| IAC DUTY RATIO | |
| CALCULAT.LOAD VALUE. | |
| MASS AIR FLOW | |
| MANIFOLD AIR PRESSURE | |
| ENGINE SPEED | |

FIX INTERVAL: 10mS CALL RCRD

Figure 7.12 Data Recording 2

13. Select the memory to which the data recorded will be stored (**Figure 7.13 Data Recording 3**).

TIPS) There are 4 memory slots for data recording. If you want to save more data, you need to overwrite the existing ones.

14. Data recording will start. To stop data recording, press **END** (F6) (**Figure 7.14 Data Recording 4**)

| 1.2 CURRENT DATA | |
|---|---------|
| * INJECTOR | 32.6 ms |
| * IGN ADVANCE | 63.5 ° |
| * SELECT MEMORY WITH [UP/DOWN] AND PRESS [ENTER] | |
| MEMORY 1 | |
| MEMORY 2 | |
| MEMORY 3 | |
| MEMORY 4 | |

FIX INTERVAL: 10mS CALL RCRD

Figure 7.13 Data Recording 3

| 1.2 CURRENT DATA | |
|-----------------------|----------|
| * INJECTOR | 32.6 ms |
| * IGN ADVANCE | 63.5 ° |
| * IAC STEP POS | 255 step |

TRIG END 7 %

Figure 7.14 Data Recording4

Pressing **TRIG** (F5) will memorize the time when you press the key (trigger setting).

Chapter 7: Vehicle Diagnosis

15. To view recorded data, press **RCRD** (F6) in the Current Data screen (**Figure 7.15 Data Calling1**)
16. Press **CALL** (F5) (**Figure 7.16 Data Calling2**).

| 1.2 CURRENT DATA | |
|-----------------------|-----------|
| INJECTOR | 32.6 ms |
| IGN ADVANCE | 63.5 ° |
| IAC STEP POS | 255 step |
| IAC DUTY RATIO | 99.7 % |
| CALCULAT. LOAD VALUE. | 99.8 % |
| MASS AIR FLOW | 655.3gm/s |
| MANIFOLD AIR PRESSURE | 36 psi |
| ENGINE SPEED | 16383rpm |

FIX SCRN FULL GRPH RCRD

Figure 7.15 Data Calling1

| 1.2 CURRENT DATA | |
|-----------------------|-----------|
| INJECTOR | 32.6 ms |
| IGN ADVANCE | 63.5 ° |
| IAC STEP POS | 255 step |
| IAC DUTY RATIO | 99.7 % |
| CALCULAT. LOAD VALUE. | 99.8 % |
| MASS AIR FLOW | 655.3gm/s |
| MANIFOLD AIR PRESSURE | 36 psi |
| ENGINE SPEED | 16383rpm |

FIX INTERVAL: 10mS CALL RCRD

Figure 7.16 Data Calling2

17. Select the memory slot where the data you want to view are stored (**Figure 7.17 Data Calling3**).
18. Stored data will be displayed.

| 1.2 CURRENT DATA | |
|---|---------|
| INJECTOR | 32.6 ms |
| IGN ADVANCE | 63.5 ° |
| SELECT MEMORY WITH [UP/DOWN] AND PRESS [ENTER] | |
| MEMORY 1 | |
| MEMORY 2 | |
| MEMORY 3 | |
| MEMORY 4 | |

FIX INTERVAL: 10mS CALL RCRD

Figure 7.17 Data Calling3

| 1.2 CURRENT DATA | |
|------------------|----------|
| INJECTOR | 32.6 ms |
| IGN ADVANCE | 63.5 ° |
| IAC STEP POS | 255 step |

GRPH [T-1] [20 mS] HOME

Figure 7.18 Data Calling4

TIPS) You can also view stored data using Flight Data Review, which will be described in the next chapter.

19. To go back to the Vehicle Diagnosis menu, press ESC.

Chapter 7: Vehicle Diagnosis

3. Dual Display

- Combination Display provides Diagnostic Trouble Codes and Current Data in one screen.

| | |
|--------------------------|--------------------------|
| 1. KIA VEHICLE DIAGNOSIS | |
| MODEL : | SORENTO |
| SYSTEM : | 2004~2006 |
| ENGINE CONTROL | |
| 01. | DIAGNOSTIC TROUBLE CODES |
| 02. | CURRENT DATA |
| 03. | DUAL DISPLAY |
| 04. | FLIGHT RECORD |
| 05. | ACTUATION TEST |
| 06. | ECU INFORMATION |
| 07. | AT/MT RECOGNITION |
| 08. | ENGINE TEST FUNCTION |

Figure 7.19 Dual Display_Select

1. If you choose the right vehicle and system at the Vehicle Diagnosis menu and if communication with the vehicle is made successfully, the menu as shown in **Figure 7.19** will appear.

Select Dual Display and press Enter.

TIPS) If the menu shown in **Figure 7.19** does not appear and a message "Communication Fail" appears or communication fails, recheck if the vehicle and DLC connector connection are normal.

2. **Figure 7.20 Dual Display_Diagnosis** screen will appear.

- If you select Dual Display, Current Data is activated.

- If you select Dual Display, Self Diagnosis Mode will start and diagnose if there are Diagnostic Trouble Codes once and for all.

| | |
|--------------------------|----------|
| DUAL DISPLAY | |
| CURRENT DATA | |
| * ALT CONTROL | 77.1 V ▲ |
| P/N SWITCH | DRIVE |
| BRAKE SWITCH | OFF |
| A/C SWITCH | OFF ▼ |
| DIAGNOSTIC TROUBLE CODES | |
| P0750 PCSU-ELECTRICAL | |
| P0752 SCSU A-ABNORMAL | |
| FIX | CURR DTC |

Figure 7.20 Dual Display_Diagnosis

| | |
|--------------------------|----------|
| DUAL DISPLAY | |
| CURRENT DATA | |
| ALT CONTROL | 77.1 V ▲ |
| P/N SWITCH | DRIVE |
| BRAKE SWITCH | OFF |
| A/C SWITCH | OFF ▼ |
| DIAGNOSTIC TROUBLE CODES | |
| P0750 PCSU-ELECTRICAL | |
| P0752 SCSU A-ABNORMAL | |
| FIX | CURR DTC |

Figure 7.21 Dual Display_Trouble

Chapter 7: Vehicle Diagnosis

3. You can place the cursor on one of Current Data you want to see and press **FIX** (F1) to fix the item.
4. Pressing **CURR** (F2) will activate Current Data and change the values.
5. Pressing **DTC** (F3) will activate Diagnostic Trouble Codes and refresh Diagnostic Trouble Codes.
6. To go back to the Vehicle Diagnosis menu press ESC.

Chapter 7: Vehicle Diagnosis

4. Flight Record

- This menu enables you to save chosen current data.
- This menu is useful when you need to save data in order to diagnose intermittent troubles.

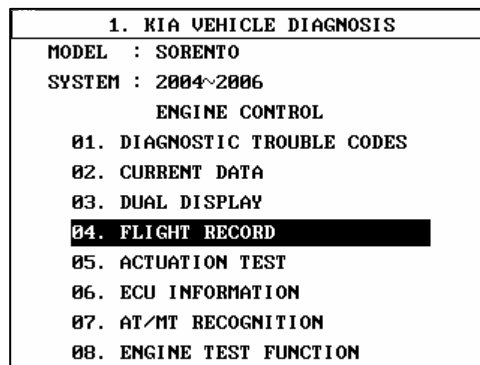


Figure 7.22 Flight Record_Select

1. If you choose the right vehicle and system at the Vehicle Diagnosis menu and if communication with the vehicle is made successfully, the menu as shown in **Figure 7.22** will appear.

Select FLIGHT RECORD and press Enter.

TIPS) If the menu shown in **Figure 7.22** does not appear and a message "Communication Fail" appears or communication fails, recheck if the vehicle and DLC connector connection are normal.

2. The **Figure 7.23** Data Recording screen will appear.

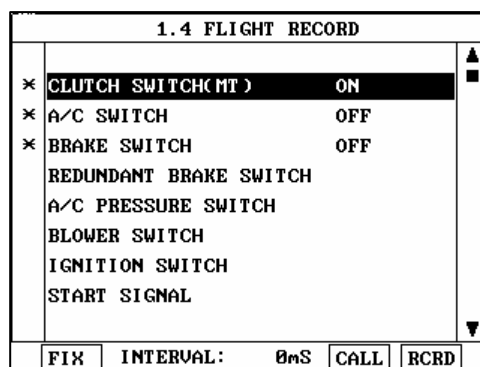


Figure 7.23 Flight Record 1

3. At the Current Data screen, select the data to be stored and press **FIX** (F1) to fix the item (**Figure 7.23 Flight Record 1**).

Chapter 7: Vehicle Diagnosis

At the side of the fixed items, * will be displayed.

TIPS) You can fix up to 8 items.

4. After you fix the items, press **RCRD** (F6) (**Figure 7.23 Flight Record 1**).
5. Select the memory where the recorded data will be stored (**Figure 7.24 Flight Record 2**).

TIPS) There are 4 memory slots for flight record. If you want to save more data, you need to overwrite the existing ones.

6. Data recording will start. To stop flight record, press **END** (F6) or ESC (**Figure 7.25 Flight Record 3**).

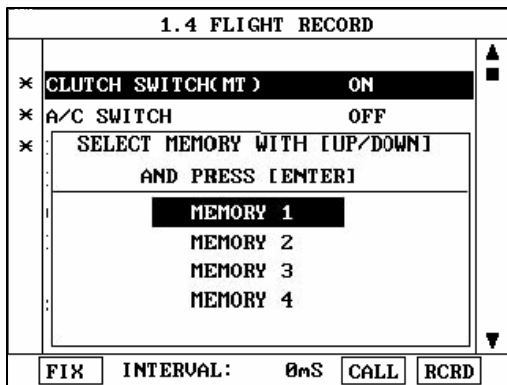


Figure 7.24 Flight Record 2

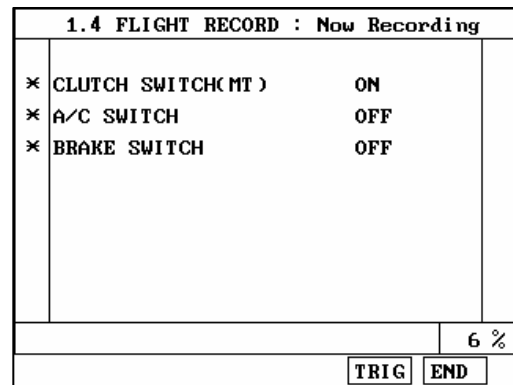


Figure 7.25 Flight Record 3

TIPS) Data recording usually takes 1 to 2 minutes, which may vary depending on the vehicle you are measuring or the number of sensors you choose.

Chapter 7: Vehicle Diagnosis

5. Actuation Test

- Actuation Test starts or runs the actuator or switches by force to check if the unit is normal.
- Actuation Test support is determined based on car makers and vehicle types.

| | |
|------------------------------|--|
| 1. KIA VEHICLE DIAGNOSIS | |
| MODEL : SORENTO | |
| SYSTEM : 2004~2006 | |
| ENGINE CONTROL | |
| 01. DIAGNOSTIC TROUBLE CODES | |
| 02. CURRENT DATA | |
| 03. DUAL DISPLAY | |
| 04. FLIGHT RECORD | |
| 05. ACTUATION TEST | |
| 06. ECU INFORMATION | |
| 07. AT/MT RECOGNITION | |
| 08. ENGINE TEST FUNCTION | |

Figure 7.26 Actuation Test_Select

1. If you choose the right vehicle and system at the Vehicle Diagnosis menu and if communication with the vehicle is made successfully, the menu as shown in **Figure 7.26** will appear. Select Actuation Test and press Enter.

TIPS) If the menu shown in **Figure 7.26** does not appear and a message "Communication Fail" appears or communication fails, recheck if the vehicle and DLC connector connection are normal.

2. **Figure 7.27 Actuation Test1** will appear.

| | | |
|----------------------------------|------------------------------|-------|
| 1.5 ACTUATION TEST | | 01/11 |
| INJECTOR-CYL. 1 | | |
| DURATION | 6 SECONDS | |
| METHOD | DEACTIVATION | |
| CONDITION | IG. KEY ON ENGINE RUNNING | |
| PRESS [STRT], IF YOU ARE READY ! | | |
| [STRT] | | |

Figure 7.27 Actuation Test1

3. Select items to be tested from Actuation Test items using the ▲ / ▼ keys.
 - In the **Figure 7.27 Actuation Test1**, 01/11 at the top right indicates the total number of test items and the item number you are seeing.

Chapter 7: Vehicle Diagnosis

4. Pressing **START** (F1) will start Actuation Test.
 - Before you start test, make sure that operation conditions are met.
 - Actuation Test takes time based on items.

| 1.5 ACTUATION TEST | | 01/11 |
|--------------------|------------------------------|-------|
| INJECTOR-CYL. 1 | | |
| DURATION | 6 SECONDS | |
| METHOD | DEACTIVATION | |
| CONDITION | IG. KEY ON ENGINE RUNNING | |
| NOW TESTING ! | | |
| STOP | | |

Figure 7.28 Actuation Test2

5. Pressing **STOP** (F2) will end Actuation Test.
 - Use this key when you want to stop testing while test is on.
 - Alternatively you can press ESC or the ▲ / ▼ keys on Carmanscan Lite to stop testing.

TIPS) Actuation Test result is evaluated by the sound made by the actuator and switches and the rpm changes. Therefore you need to perform actuation test in a place as quiet as possible.

Chapter 8: OBD-II Selecting Menu

1. OBD-II Overview

■ Purpose of OBD-II

- OBD-II is intended to find what caused the exhaust gas to increase, diagnose the corresponding part and light the warning lamp, and thus provide faster and more precise repair.

■ OBD-II Regulations

- If exhaust gas increases due to defected parts, diagnose the part and cause, and turn on the warning light (MIL).
- Trouble information shall be read by the standard diagnosis tools (GST).

■ OBD-II Regulations 《Check List》

A warning light shall be on before the exhaust gas reaches 1.5 times of permissible limit due to the following troubles or performance degradation.

- Catalyst purification rate (diagnosis of this is for HC emission only, from TLEV phase-in is being applied to 1.75 times of HC limit), MISFIRE, EGR System, O2 Sensor, Fuel System Secondary Air System
- Diagnose all sensors and actuators used for controlling engine to see if they are working normally and if there is no broken wire or short circuit.
- Diagnose the entire evaporation system to see if it leaks.
- Diagnose as trouble when the PCV valve and the crankcase or the PCV valve and the intake manifold are disconnected.
- Diagnose as thermostat fail when the cooler failed to reach the temperature where you can diagnose other items in a given time after starting the engine.

Chapter 8: OBD-II Selecting Menu

2. Connecting Self Diagnosis Connector and Selecting Diagnosis Program (Common to Korean/Japanese/European vehicles)

1. Check the location of the diagnosis connector in the vehicle.
 - In most OBD-II vehicles, the connector is located above the brake pedal under the steering wheel

(Figure 8.1 OBD-II Diagnosis Connector Location)

 - Because the vehicles without OBD-II diagnosis connector do not conform to the OBD-II communication protocol you can not use OBD-II Vehicle Diagnosis.



Figure 8.1 OBD-II Diagnosis Connector Location

2. Connect the vehicle diagnosis connector and Carmanscan Lite with the diagnosis cable.

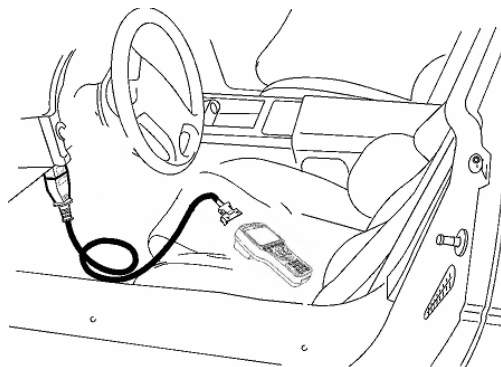


Figure 8.2 Connecting Diagnosis Cable

Chapter 8: OBD-II Selecting Menu

3. Power on Carmanscan Lite.
 - Because OBD-II vehicles feed power through the diagnosis connector, they do not need additional power supply.
4. From Vehicle Diagnosis select the corresponding diagnosis pack (country menu) and press Enter (**Figure 8.3 Diagnosis Pack Option1**)

| 1. VEHICLE DIAGNOSIS | | |
|------------------------------|--|---------------|
| 01. EUROPEAN | | 771ENG |
| 02. JAPAN | | 641ENG |
| 03. USA | | 771ENG |
| 04. HYUNDAI | | 771ENG |
| 05. KIA | | 771ENG |
| 06. DAEWOO SSANGYONG SAMSUNG | | 771ENG |

INFO

Figure 8.3 Diagnosis Pack Option

5. Select OBD-II Vehicle Diagnosis and press Enter.

| 0. INITIAL SCREEN | |
|----------------------------------|--|
| 01. HYUNDAI VEHICLE DIAGNOSIS | |
| 02. CARB OBD-II DIAGNOSIS | |
| 03. FLIGHT RECORD REVIEW | |

Figure 8.4 OBD-II Diagnosis Pack Option



Whenever you diagnose your car, make sure that the starter is placed on "IGNITION ON." If the starter key is placed on "OFF," power will not feed to ECU and diagnosis will fail with Carmanscan Lite.

Chapter 8: OBD-II Selecting Menu

6. Diagnosis will be initialized.
 - If communication succeeds, **Figure 8.6 OBD-II Communication Succeeded** will be displayed, but if it fails **Figure 8.7 OBD-II Communication Failed** will be displayed.

TIPS) If communication failed, check the following on-screen instructions.

1. Whether IG key is ON
2. Whether OBD-II is supported

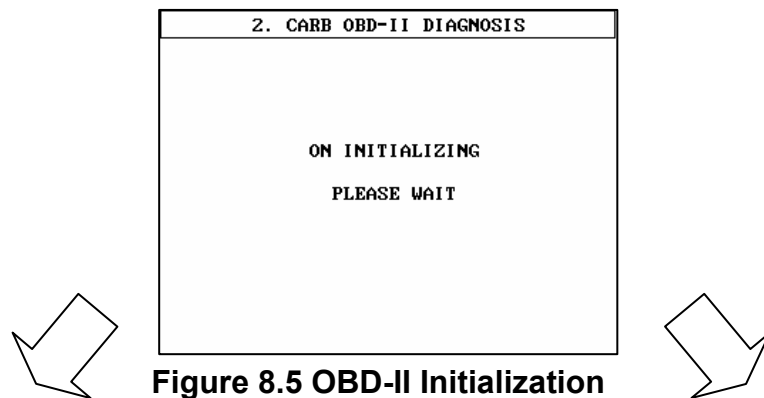


Figure 8.5 OBD-II Initialization

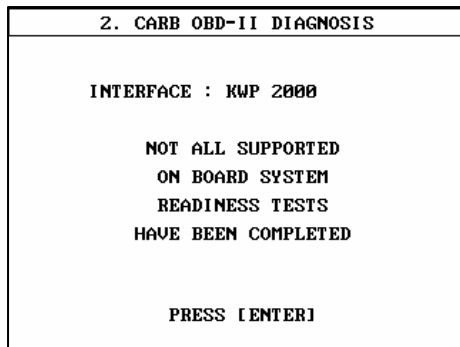


Figure 8.6 OBD-II Communication Succeeded

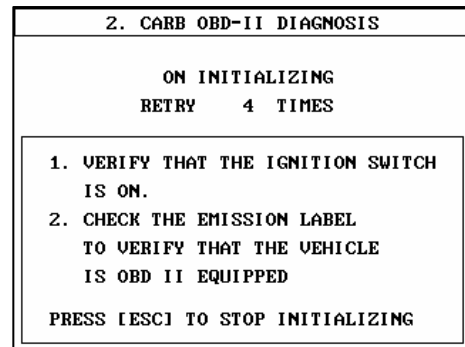


Figure 8.7 OBD-II Communication Failed

7. If communication is successful, press Enter to proceed to the next step.
If communication failed, press ESC to go back to **Figure 8.4 Initial Screen**.

* Terminology

- **EMISSION LABEL** : A label attached on cars signifying the specifications of the car.

Chapter 8: OBD-II Selecting Menu

8. Diagnosis menu will be displayed. **(Figure 8.8 OBD-II Diagnosis Menu)**

| 3. CARB OBD-II DIAGNOSIS |
|------------------------------|
| 01. READINESS TEST |
| 02. CURRENT DATA |
| 03. DIAGNOSTIC TROUBLE CODES |
| 04. FREEZE FRAME DATA |
| 05. EXPANDED DIAG. PROTOCOL |
| 06. O2 TEST RESULTS |
| 07. MONITORING TEST RESULTS |
| 08. COMBINATION DISPLAY |
| 09. ECU INFORMATION |
| 10. PENDING DTC |

Figure 8.8 OBD-II Diagnosis Menu

Chapter 9: OBD-II Vehicle Diagnosis

1. Readiness Test

- Readiness Test tries making communication with your car to review general items of ECU modules that responded.

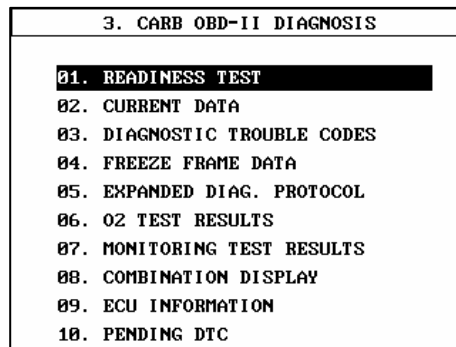


Figure 9.1 Selecting Readiness Test

If communication with the car is made successfully, the menu shown in **Figure 9.1** will appear. Select Readiness Test and press Enter.

- TIPS)** If the menu in **Figure 9.1** does not appear and communication fails, recheck if the car and the diagnosis connector connection are normal. In addition, check if the car supports OBD-II communication.

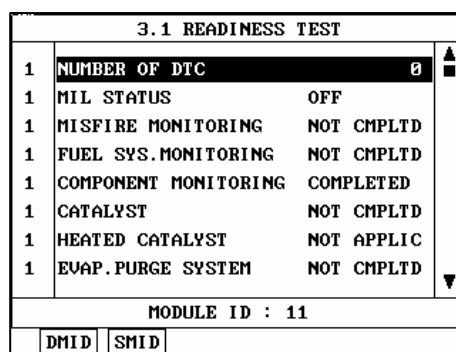


Figure 9.2 Readiness Test Result

DMID (F1) : "DISPLAY MODULE ID"

- Displays the module ID that provided the chosen item information.

SMID (F2) : "SELECT MODULE ID"

- You can check module information respectively if multiple modules responded.

Chapter 9: OBD-II Vehicle Diagnosis

- The number "1" displayed in the left side of the result indicates that information was acquired from one module.
- If information was acquired from more than one module, the number of modules that sent information will be displayed, and based on module information the following will be displayed in front of the module number.

*** If two or more ECUs responded but the data are the same: ***

*** If two or more ECUs responded but the data are not the same: #**

*** If one or more ECU is supported but none responded: -**

*** Terminology**

1. Not Completed : Test has not been completed.
 - This appears when test was not completed owing to abnormal ECU or abnormal sensor required to display the result.
2. Completed : Test has been completed.
3. Off : The item is not applied to the testing vehicle.

Chapter 9: OBD-II Vehicle Diagnosis

2. Current Data Display

- You can view current data specified by the OBD-II standard.

| 3. CARB OBD-II DIAGNOSIS | |
|--------------------------|--------------------------|
| 01. | READINESS TEST |
| 02. | CURRENT DATA |
| 03. | DIAGNOSTIC TROUBLE CODES |
| 04. | FREEZE FRAME DATA |
| 05. | EXPANDED DIAG. PROTOCOL |
| 06. | O2 TEST RESULTS |
| 07. | MONITORING TEST RESULTS |
| 08. | COMBINATION DISPLAY |
| 09. | ECU INFORMATION |
| 10. | PENDING DTC |

Figure 9.3 Selecting OBD-II Current Data

1. If communication with the vehicle is made successfully, the menu shown in **Figure 9.3** will appear.

Select Current Data and press Enter.

TIPS) If the menu in **Figure 9.3** does not appear and communication fails, recheck if the car and the diagnosis connector connection are normal. In addition, check if the car supports OBD-II communication.

| 3.2 CURRENT DATA | |
|------------------|-------------------------------|
| 1 | FUEL SYS.STS - BNK1 OPEN LOOP |
| 1 | FUEL SYS.STS - BNK2 OPEN LOOP |
| 1 | CALCULAT.LOAD VALUE. 0.0 % |
| 1 | COOLANT TEMP. SENSOR -40 °C |
| 1 | SHORT TERM FUEL (B1) 0.0 % |
| 1 | SHORT TERM FUEL (B3) 0.0 % |
| 1 | LONG TERM FUEL (B1) 0.0 % |
| 1 | LONG TERM FUEL (B3) 0.0 % |
| MODULE ID : 11 | |
| DMID SMID SPID | |

Figure 9.4 OBD-II Current Data Display

2. As shown in **Figure 9.4**, the Current Data screen appears.

DMID (F1) : "DISPLAY MODULE ID"

- Displays the module ID that provided information of the chosen item.

Chapter 9: OBD-II Vehicle Diagnosis

SMID (F2) : "SELECT MODULE ID"

- If multiple modules responded, you can view information for each module.
- If one module responded, only the information of that module will be displayed.

| 3.2 CURRENT DATA | | |
|------------------|----------------------|-----------|
| 11 | FUEL SYS.STS - BNK1 | OPEN LOOP |
| | FUEL SYS.STS - BNK2 | OPEN LOOP |
| | CALCULAT.LOAD VALUE. | 0.0 % |
| | COOLANT TEMP. SENSOR | -40 °C |
| | SHORT TERM FUEL (B1) | |
| | SHORT TERM FUEL (B3) | |
| | LONG TERM FUEL (B1) | |
| | LONG TERM FUEL (B3) | |

Figure 9.5 OBD-II Current Data_SMID

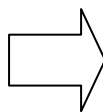
SPID (F3) : "SELECT PID"

- You can select Parameter ID (PID).
- You can view current data of the chosen screen.

| 3.2 CURRENT DATA | | |
|------------------|----------------------|--|
| | FUEL SYS.STS - BNK1 | |
| | FUEL SYS.STS - BNK2 | |
| | CALCULAT.LOAD VALUE. | |
| | COOLANT TEMP. SENSOR | |
| | SHORT TERM FUEL (B1) | |
| | SHORT TERM FUEL (B3) | |
| | LONG TERM FUEL (B1) | |
| | LONG TERM FUEL (B3) | |

AFTER SELECT ITEMS, PRESS [ENTER]

SLCT



| 3.2 CURRENT DATA | | |
|------------------|---------------------|-----------|
| 1 | FUEL SYS.STS - BNK1 | OPEN LOOP |

MODULE ID : 11

DMID SMID SPID

Figure 9.6 OBD-II Current Data_SPID1 Figure 9.7 OBD-II Current Data_SPID2

* Terminology

1. PID : PARAMETER ID

- Each current data has its own ID.
This unique ID is called PID.

Chapter 9: OBD-II Vehicle Diagnosis

3. Diagnostic Trouble Codes

- You can check if there is a diagnostic trouble code for your car.

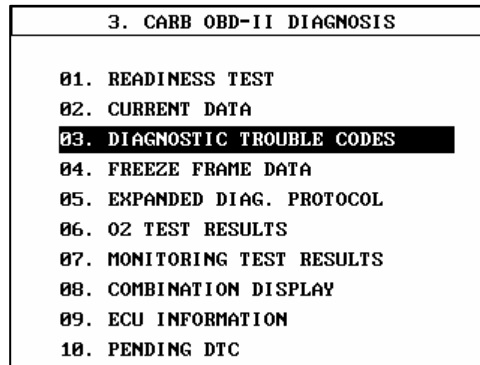


Figure 9.8 Selecting Diagnostic Trouble Code

1. If communication with the vehicle is made successfully, the menu shown in Figure 9.8 will appear.

Select Diagnostic Trouble Codes and press Enter.

TIPS) If the menu in Figure 9.3 does not appear and communication fails, recheck if the car and the diagnosis connector connection are normal. In addition, check if the car supports OBD-II communication.

2. Diagnostic trouble code diagnosis result will appear.

- If there is no trouble code (Figure 9.9 No Trouble Code)
- If there are trouble codes (Figure 9.10 Trouble Code Found)

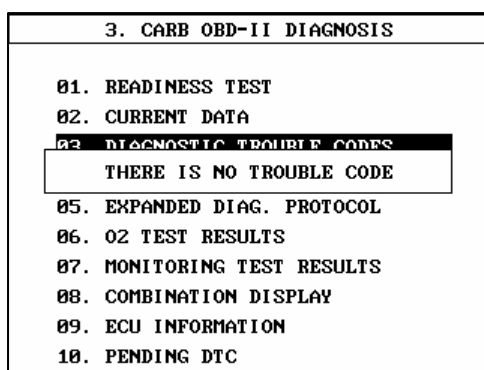


Figure 9.9 Diagnostic Trouble Code None Figure

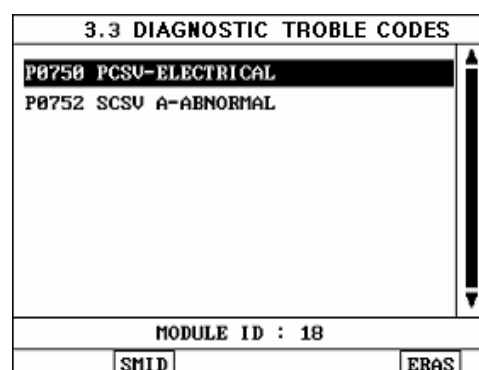


Figure 9.10 Diagnostic Trouble Code Found



(F2) : See "SELECT MODULE ID"

(Figure 9.5 OBD-II Current Data_SMID).

- You can view modules containing trouble information.

Chapter 9: OBD-II Vehicle Diagnosis

ERAS (F6) : Erases Diagnostic Trouble Codes.

Chapter 9: OBD-II Vehicle Diagnosis

4. Freeze Frame Data

- If there are diagnostic trouble codes, you can view important current data where the first trouble code occurred.

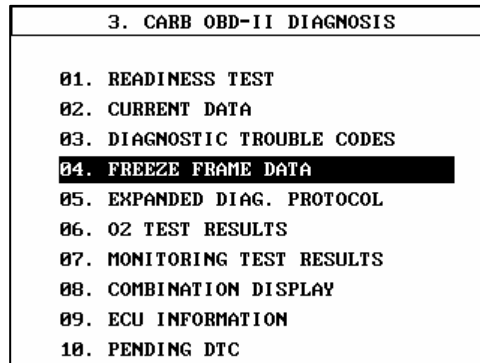


Figure 9.11 Selecting Freeze Frame Data

1. If communication with the vehicle is made successfully, the menu shown in **Figure 9.11** will appear.

Select Freeze Frame Data and press Enter.

TIPS) If the menu in **Figure 9.11** does not appear and communication fails, recheck if the car and the diagnosis connector connection are normal. In addition, check if the car supports OBD-II communication.

2. Freeze Frame Data will appear.

- If there is no Diagnostic Trouble Code (**Figure 9.12**)
- If there is Diagnostic Trouble Code (**Figure 9.13**)

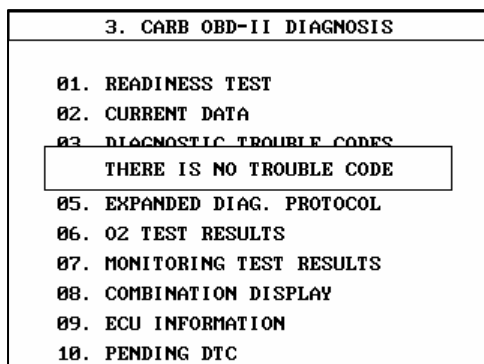


Figure 9.12 No Diagnostic Trouble Code

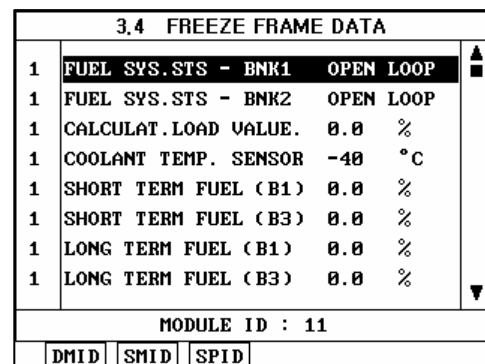


Figure 9.13 Diagnostic Trouble Code Found

Chapter 9: OBD-II Vehicle Diagnosis

5. EDP: Expanded Diagnostic Protocol

- EDP is intended to provide the following features to enable communication by a random protocol defined by vehicle manufacturers.

(SAE J1978 Standard based OBD-II Scan Tool)

- Described by Carmanscan Lite the messages transmitted to vehicles and how to transmit these messages.
- Described by Carmanscan Lite the messages the scan tool will receive and process.
- Described by Carmanscan Lite how to process data containing in the message received.

- Generally EDP definitions have 4 types as follows:

1) CONTROL TYPE Definition

<id>,<type>,<DSV>

2) TRANSMIT TYPE Definition

<id>,<type>,<tx msg>,<rx filter>,
<rx data processing info>,<DSV>

3) RECEIVE ONLY TYPE Definition

<id>,<type>,<rx filter>,<rx data processing info>
,<DSV>

4) MISCELLANEOUS TYPE Definition

<id>,<type and additional info>,<DSV>

TIPS) For more details, see SAE J1978 Standard.

Chapter 9: OBD-II Vehicle Diagnosis

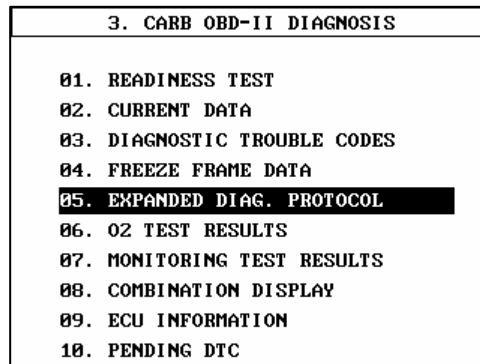


Figure 9.14 Selecting Expanded Diag. Protocol

1. If communication with the vehicle is made successfully, the menu shown in **Figure 9.14** will appear.

Select Expanded Diag. Protocol and press Enter.

TIPS) If the menu in **Figure 9.14** does not appear and communication fails, recheck if the car and the diagnosis connector connection are normal. In addition, check if the car supports OBD-II communication.

2. The Expanded Diag. Protocol screen will appear.

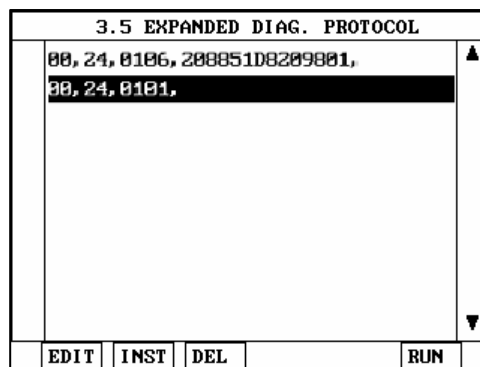


Figure 9.15 Expanded Diag. Protocol

EDIT

(F1) : Enters EDP edit mode.

INST

(F2) : Inserts a new EDP.

DEL

(F3) : Deletes EDP.

RUN

(F6) : Runs newly applied EDP.

Chapter 9: OBD-II Vehicle Diagnosis



Use Expanded Diagnosis Protocol only when you have professional knowledge about SAE J1978 Standard or when the car maker's standard is verified.

Chapter 9: OBD-II Vehicle Diagnosis

6. O2 Test Results

- This menu displays monitoring results of the oxygen sensor related items required by OBD-II Standard.

| 3. CARB OBD-II DIAGNOSIS | |
|--------------------------|--------------------------|
| 01. | READINESS TEST |
| 02. | CURRENT DATA |
| 03. | DIAGNOSTIC TROUBLE CODES |
| 04. | FREEZE FRAME DATA |
| 05. | EXPANDED DIAG. PROTOCOL |
| 06. | O2 TEST RESULTS |
| 07. | MONITORING TEST RESULTS |
| 08. | COMBINATION DISPLAY |
| 09. | ECU INFORMATION |
| 10. | PENDING DTC |

Figure 9.16 Selecting O2 Test Results

1. If communication with the vehicle is made successfully, the menu shown in **Figure 9.16** will appear.

Select Test Results and press Enter.

TIPS) If the menu in **Figure 9.16** does not appear and communication fails, recheck if the car and the diagnosis connector connection are normal. In addition, check if the car supports OBD-II communication.

2. Oxygen sensor test results will be displayed.

| 3.6 O2 TEST RESULTS | | |
|---------------------|---------------------|-----------|
| 1 | R -> L O2S VOLTAGE | 0.520 V |
| 1 | L -> R O2S VOLTAGE | 0.520 V |
| 1 | LOW VOL. - SW.TIME | 0.520 V |
| 1 | HIGH VOL. - SW.TIME | 0.520 V |
| 1 | R -> L SWITCH TIME | 0.000 sec |
| 1 | L -> R SWITCH TIME | 0.000 sec |
| 1 | O2S TRANSITION TIME | 0.00 sec |
| 1 | TEST ID \$30 | 0.00 sec |
| MODULE ID : 11 | | |
| DMID SMID STID | | |

Figure 9.17 O2 Test Results

DMID (F1) : "DISPLAY MODULE ID"

- Displays the module ID that provided information of the chosen item.

Chapter 9: OBD-II Vehicle Diagnosis

SMID (F2) : "SELECT MODULE ID"

- You can check module information respectively if multiple modules responded.

STID (F3) : "SELECT TEST ID"

- You can select an ID you want to test.

Chapter 9: OBD-II Vehicle Diagnosis

7. Monitoring Test Results

- This menu displays monitoring test results while the car is being normally operated.
- To test systems and units of different manufacturers, it is required to specify test IDs and component IDs. If there is no test item the vehicle manufacturer supports, an error message will be displayed.

| 3. CARB OBD-II DIAGNOSIS | |
|--------------------------|--------------------------|
| 01. | READINESS TEST |
| 02. | CURRENT DATA |
| 03. | DIAGNOSTIC TROUBLE CODES |
| 04. | FREEZE FRAME DATA |
| 05. | EXPANDED DIAG. PROTOCOL |
| 06. | O2 TEST RESULTS |
| 07. | MONITORING TEST RESULTS |
| 08. | COMBINATION DISPLAY |
| 09. | ECU INFORMATION |
| 10. | PENDING DTC |

Figure 9.18 Selecting Monitoring Test Results

1. If communication with the vehicle is made successfully, the menu shown in **Figure 9.18** will appear.

Select Monitoring Test Results and press Enter.

TIPS) If the menu in **Figure 9.18** does not appear and communication fails, recheck if the car and the diagnosis connector connection are normal. In addition, check if the car supports OBD-II communication.

2. Monitoring Test Results will be displayed.

| 3.7 MONITORING TEST RESULTS | | | | |
|-----------------------------|---------|---|-------|------|
| TID\$01 | CID\$01 | 0 | 35840 | PASS |
| TID\$01 | CID\$02 | 0 | 35840 | PASS |
| TID\$02 | CID\$01 | 0 | 0 | PASS |
| TID\$02 | CID\$03 | 0 | 0 | PASS |
| TID\$02 | CID\$05 | 0 | 0 | PASS |
| TID\$02 | CID\$07 | 0 | 0 | PASS |
| TID\$02 | CID\$02 | 0 | 0 | PASS |
| TID\$02 | CID\$04 | 0 | 0 | PASS |
| COMPONENT ID11 | | | | |
| DCID | STID | | | |

Figure 9.19 Monitoring Test Results

Chapter 9: OBD-II Vehicle Diagnosis

DCID : “DISPLAY COMPONENT ID”

- This is used to display the component ID you have chosen.

STID : “SELECT TEST ID”

- You can select an ID you want to test.

Chapter 9: OBD-II Vehicle Diagnosis

8. Combination Display

- You can view two different types of information in one screen.
- You can view the following data:

A. Current Data

C. Freeze Frame Data

B. Diagnostic Trouble Code

D. Monitoring Data

| 3. CARB OBD-II DIAGNOSIS | |
|--------------------------|--------------------------|
| 01. | READINESS TEST |
| 02. | CURRENT DATA |
| 03. | DIAGNOSTIC TROUBLE CODES |
| 04. | FREEZE FRAME DATA |
| 05. | EXPANDED DIAG. PROTOCOL |
| 06. | O2 TEST RESULTS |
| 07. | MONITORING TEST RESULTS |
| 08. | COMBINATION DISPLAY |
| 09. | ECU INFORMATION |
| 10. | PENDING DTC |

Figure 9.20 Selecting Combination Display

1. If communication with the vehicle is made successfully, the menu shown in **Figure 9.20** will appear.

Select Combination Display and press Enter.

TIPS) If the menu in **Figure 9.20** does not appear and communication fails, recheck if the car and the diagnosis connector connection are normal. In addition, check if the car supports OBD-II communication.

| 3.8 COMBINATION DISPLAY | | | | |
|------------------------------|---------------------|----------|--|----|
| CURRENT DATA | | | | |
| 3# | FUEL SYS.STS - BNK1 | NOT USED | | ▲ |
| 3# | FUEL SYS.STS - BNK2 | NOT USED | | |
| 3# | LONG TERM FUEL (B2) | 0.0 % | | |
| 3# | FUEL PRESSURE | 384 kPa | | ▼ |
| B2-S2 | O2 TEST RESULTS | | | 17 |
| 3# | R -> L O2S VOLTAGE | 0.640 V | | ▲ |
| 3# | L -> R O2S VOLTAGE | 0.640 V | | |
| 3# | LOW VOL. - SW.TIME | 0.640 V | | |
| 3# | O2S TRANSITION TIME | 5.12 sec | | ▼ |
| DMID CURR DTC FRZE OZTS MONI | | | | |

Figure 9.21 Combination Display

Chapter 9: OBD-II Vehicle Diagnosis

DMID : “DISPLAY MODULE ID”

- Displays the module ID that provided chosen item information.

CURR : Displays Current Data at the lower part of the screen.

DTC : Displays Diagnostic Trouble Code at the lower part of the screen.

FRZE : Displays Freeze Frame Data at the lower part of the screen.

O2TS : Displays Oxygen Sensor Test Results at the lower part of the screen.

MONI : Displays Monitoring Test Results at the lower part of the screen.

Chapter 9: OBD-II Vehicle Diagnosis

9. ECU Information

- This menu displays information of ECU installed in your car.
- You can view only the ECU that provides its module information.

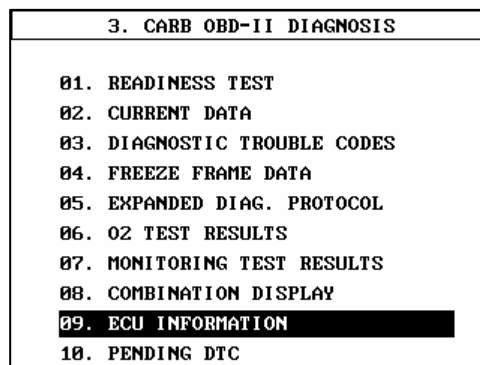


Figure 9.22 Selecting ECU Information

1. If communication with the vehicle is made successfully, the menu shown in **Figure 9.22** will appear.

Select ECU Information and press Enter.

TIPS) If the menu in **Figure 9.22** does not appear and communication fails, recheck if the car and the diagnosis connector connection are normal. In addition, check if the car supports OBD-II communication.

2. Vehicle ECU information will be displayed.

- You can view the unique ID and check sum of the ECU installed in the car.

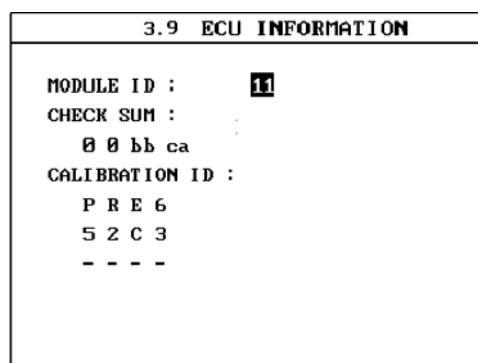


Figure 9.23 Vehicle Information

Chapter 9: OBD-II Vehicle Diagnosis

10. Pending Diagnostic Trouble Codes (DTC)

- You can view pending diagnostic trouble codes that were detected by ECU due to temporal abnormality.

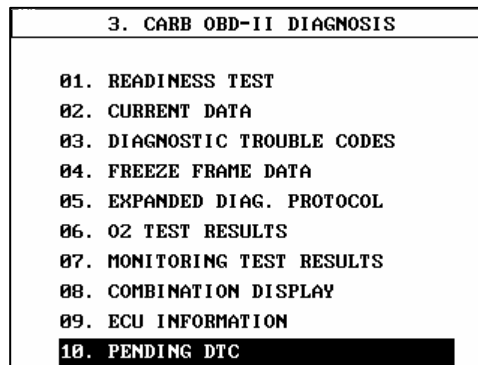


Figure 9.24 Selecting Pending DTC

1. If communication with the vehicle is made successfully, the menu shown in **Figure 9.24** will appear.

Select Pending DTC and press Enter.

TIPS) If the menu in **Figure 9.24** does not appear and communication fails, recheck if the car and the diagnosis connector connection are normal. In addition, check if the car supports OBD-II communication.

2. Pending Diagnostic Trouble Code information will be displayed.

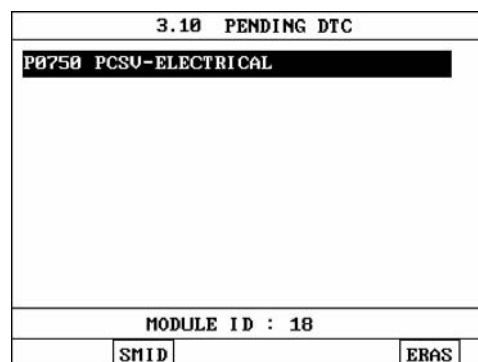


Figure 9.25 Pending Diagnostic Trouble Code

SMID : "SELECT MODULE ID"

- You can check module information respectively if multiple modules responded.

Chapter 9: OBD-II Vehicle Diagnosis

ERAS : “ERASE”

- You can delete detected diagnostic trouble codes.

Chapter 10: Flight Record Review

1. How To Feed Power

- Flight Record Review enables you to review vehicle diagnosis data stored in Carmanscan Lite whether or not it is connected to the vehicle.
Therefore, you can choose a power supply that fits environment.

- 1) Cigar lighter cable
- 2) DLC 16p cable
 - for OBD-II vehicles and cars that feed power through vehicle diagnosis connector
- 3) AC/DC adaptor
- 4) Rechargeable battery pack

2. Characteristics of Flight Record Review

- Previously Flight Record Review can be viewed only after you make communication with the vehicle. But it is not possible to view without having to connect the vehicle.

3. Applications of Flight Record Review

- As all types of cars provide their standard values, you can easily find troubles by saving vehicle data at normal times and comparing them with that of problematic cars.
- For intermittent troubles or those rarely show the symptom, you can use Data Recording as a black box and view the content using Flight Record Review.

Chapter 10: Flight Record Review

4. Flight Record Review

- Followings are the procedure of using Flight Record Review.

1. Power on Carmanscan Lite, select Vehicle Diagnosis for your vehicle type, and press Enter.
2. Select the vehicle pack (country menu) of the vehicle you want to diagnose and press Enter.

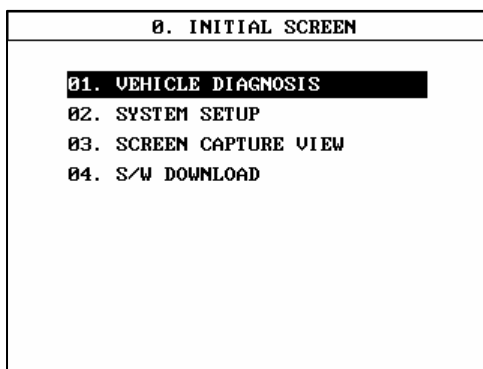


Figure 10.1 Flight Record Review 1

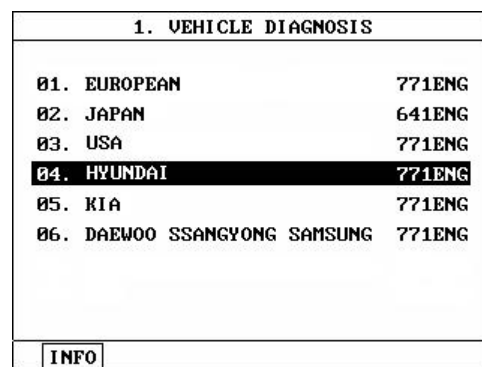


Figure 10.2 Flight Record Review 2

3. Select Flight Record Review and press Enter.
4. Select the memory slot where data are stored and press Enter.

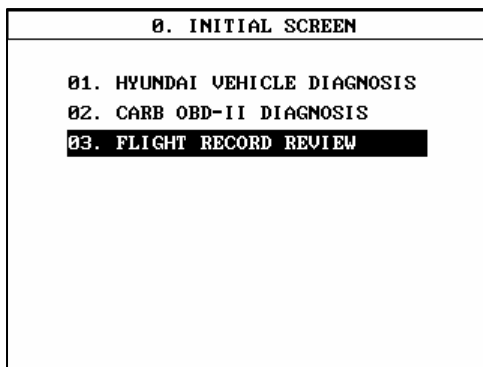


Figure 10.3 Flight Record Review 3

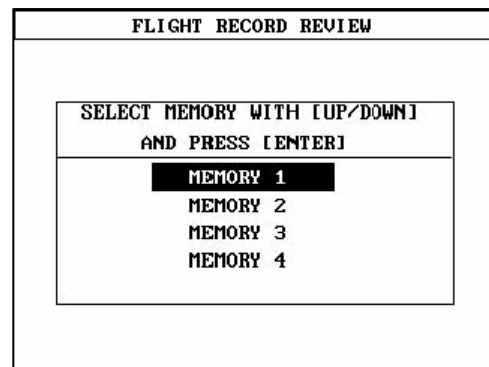


Figure 10.4 Flight Record Review 4



Flight Record Review provides a view to stored flight record without connecting to the vehicle, so you can not save the flight record in this mode. To write flight record, use Data Recording described in the pages 54 - 56.

Chapter 10: Flight Record Review

| 1.2 CURRENT DATA | |
|------------------|----------|
| INJECTOR | 32.6 ms |
| IGN ADVANCE | 63.5 ° |
| IAC STEP POS | 255 step |

GRPH [T-1] [20 ms] HOME

Figure 10.5 Flight Record Review 5

GRPH

: Displays stored data in a graph.

(Figure 10.5 Flight Record Review 6)

- Displays numeric data in a graph.

HOME

: Moves the screen back to the time when data recording started.

| 4. FLIGHT RECORD REVIEW | |
|-------------------------|---------------|
| 32.6 | *INJECTOR ms |
| 32.6 | |
| 0.0 | |
| 63.5 | IGN ADVANCE ° |
| 63.5 | |
| -64.0 | |

LIST [T-1] [20 ms] FIX HOME

Figure 10.6 Flight Record Review 6

LIST

: Converts the graphic screen into the numeric data screen.

FIX

: Fixes items you have chosen.

“

WARRANTY CARD



Warranty Policy

1. The manufacturer warrants this product to be defect free in material and workmanship for a period of one (1) year from the date of purchase. Defective products may be returned by the original purchaser within the warranty period, postage pre-paid together with proof of purchase date to Nextech Co. LTD. Defective products will be repaired at manufacturer's discretion, replaced at no charge.
2. The warranty does not apply to any units that have been tampered with, or to damages incurred through improper use and care, defects caused by abuse or through the usage for purposes other than the intended use, used in a manner inconsistent with the instructions regarding use, and faulty packing or mishandling by any common carrier.
3. Repairs not covered by this warranty will be performed at the current cost for parts and labor. In no event will Nextech Co. Ltd's liability exceed the price paid for the product from direct, indirect, special, incidental or, consequential damages resulting from the use of this product, its accompanying software, or its documentation without obligation to notify any individual or entity. Warranties hereunder extend only to customers and are not transferable.

Warranty Period & Software update

1. Warranty period for Nextech products and these's accessories including software card is from the date of sale to the original consumer.
2. Free Software update for Nextech products is one (1) year from date of purchase. After one (1) year from purchase date, software updates will be optional and will require separate payment per request.

Repair Service

1. If you suspect that you have a problem with this product, please read the operation manual (guide) carefully to ensure that you are operating this product properly.
2. If you conclude that a real problem exists, check your product according to the procedures on the "Trouble Shooting Card" and mark your trial records in the blank.
3. Please return the main body or the troubled parts along with the "Trouble Shooting Card" to the repair service center listed below. Be sure to return them in freight prepaid as we don't accept freight collect.

Nextech Service Center

Nextech Co. Ltd.
E&C Venture Dream Tower(the 3rd) 13F
Guro-dong, 197-33 Guro-Gu, Seoul, Korea
Tel : (822)3140-1489 Fax : (822)3140-1449
Email : sales@nex-tek.com
kkanggri@nex-tek.com

North America Customer Service Center

Nextech America Inc.
202 Fashion Lane suite 105
Tustin Ca, 92780 USA
Tel: (714)832-0100 Fax: (714)832-0123
Email: nacs@nex-tek.com

Website: www.nex-tech.com/carman

WARRANTY CARD



Warranty Registration

Upon receiving the product, please fill out the following registration form and return either by fax or separate mail to **Nextech Service Center** or **North America Customer Service Center (only USA customer)** according to your area.

IMPORTANT: Any delay or missing of your warranty registration may cause disadvantage or inconvenience to your warranty repair service.

CUSTOMER NAME _____

COMPANY NAME _____

ADDRESS _____

COUNTRY/STATE _____ ZIP _____

TEL NO. _____ FAX NO. _____

EMAIL ADDRESS _____

SERIAL NO _____ LOT NO _____

SOFTWARE VERSION _____

DEALERSHIP _____

DATE OF PURCHASE MONTH _____ DAY _____ YEAR _____

SIGNATURE

DATE

WARNING

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