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Check before use

Read me first ---------- A-00-001
Introduction of G-scan ---------- A-00-002
Safety Warnings and Cautions before Use ---------- A-00-003

Read me first

Check before use **Module: A-00-001**

Introduction

Thank you for purchasing G-scan. This manual describes the basic information for using G-scan. Before operation, please read this manual to be familiar with important information.

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Disclaimer

G-scan specifications and manual are subject to change without prior notice. Global Information technology Co., Ltd. assumes no liability for the products, which GIT do not produce.

Introduction of G-scan

Check before use **Module: A-00-002**

Overview

Comparing with the conventional diagnostic tool, the interface of G-scan is designed for easy operation so that efficiency of service maintenance is maximized.

- **Input using the Touch Screen**
  Without complicated button operation, you can select menu and function on the screen directly for easy operation.

- **5.6″ Color TFT LCD**
  Adapting the 5.6″ large size Color TFT LCD, more data can be shown on the screen at the same time.

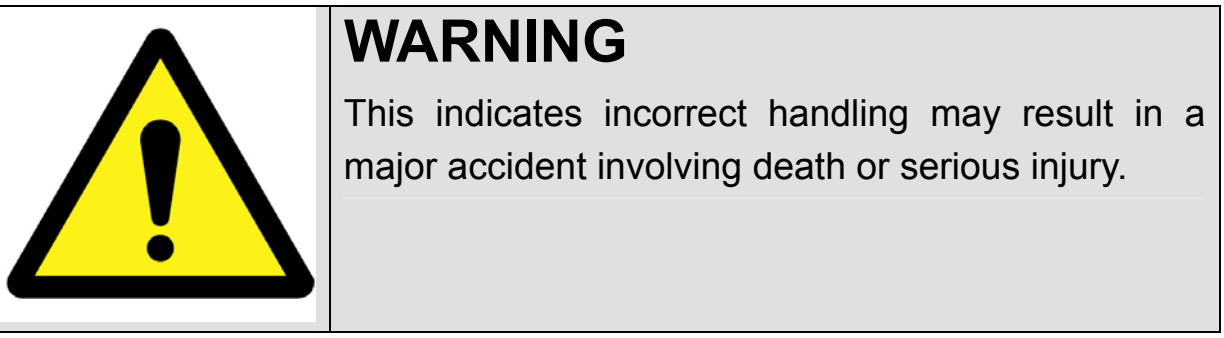
- **USB communication interface**
  Using the USB communication interface, it can be connected with other options to be developed in the future.

- Possible to search the DTC of all control module installed in vehicle at one time
- Diagnose the vehicle with CARB OBD-II
- Record the current data
- Support Vehicle S/W management functions for diagnosis
- Actuator test
- Comparison analysis through dual mode
- Support general description relating to DTC

Safety Warning and Caution Before Use

Check before use **Module: A-00-003**

This section contains WARNING and CAUTION for safe usage of G-scan. Before use, user should read the following information carefully.



WARNING

This indicates incorrect handling may result in a major accident involving death or serious injury.

- G-scan should be secured in a safe location when operated in the vehicle to avoid interference with other vehicle equipment.
- Only use the specified adapters and cables when connecting G-scan module.
- Ensure all cables are properly connected during operation. Do not disconnect communication cable (G1PDDCA001) or power cables unless the operation is over.
- Do not disassemble G-scan module.
- When updating G-scan (firmware, O/S, etc.), connect the external power (AC/DC adaptor) to supply stable power.
- Use only genuine accessory parts supplied by GIT.

- Do not connect the measuring device to other equipments rather than vehicles.
- Products are to be used within the operating temperatures. (Refer to Specifications)
- Products are to be stored within the storage temperatures. (Refer to Specifications)
- Use GIT products for their original purpose only.
- Users have their own responsibility for Product damages and fire hazards caused by users' operation without full understanding of the Caution and other information stated in the manual.
- GIT products should never be tested or repaired by anyone rather than authorized service technicians by GIT.
- When exchanging rechargeable battery, comply with the method described in this manual for sure.
- Use rechargeable battery supplied from GIT only.
- Do not disconnect the rechargeable battery at one's discretion.
- Be careful that the rechargeable battery is neither wet nor in water.
- Do not put the rechargeable battery near the fire.
- Do not impact or prick the rechargeable battery with sharpen object.
- Do not put the rechargeable battery into the microwave oven or high pressed vessel.
- Do not throw nor impact on rechargeable battery.
- Be careful that the terminals of rechargeable battery are not short.

- If the rechargeable battery shows any abnormal symptoms such as odor, heat, deformation or discolor, do not use it. And stop operation and remove the battery immediately.
- Do not reverse the positive(+) and negative(-) terminals for the rechargeable battery.
- Do not connect the rechargeable battery directly to wall outlets or car cigar lighter sockets.
- Do not put the rechargeable battery into a fire or apply direct heat to it.
- Do not make a short-circuit of rechargeable battery by connecting wires or other metal objects to the positive(+) and negative(-) terminals.
- We, GIT are not responsible for products other than products produced by GIT.

CAUTION

This indicates incorrect handling **may lead to injury or damage to properties.** Under certain conditions more serious consequences may result.

- Do not drop G-scan.
- Do not place any objects (tools, manuals, etc.) on G-scan module.
- When connecting cables under the hood, secure the cables to avoid damage caused by hot or moving parts.
- When connecting the DLC cable (G1PDDCA001), check the locking device.
- Observe correct polarity when connecting the power supply cable.
- Properly store all components when not in use.
- Do not use cables as carrying handle.
- Do not store products in places where
  - Extremely high or low temperature (Refer to feature of products)
  - Extremely high or low humidity (Refer to feature of products)
  - Inside a vehicle during summer season for a long time
  - Exposed to direct rays
- Avoid a shock or vibrations during carrying.
- Keep products away from moisture.
- Keep products away from flammable substances or places where fierce static electricity may occur.
- Products and accessories are not to be coated or painted with chemical substances or acid that can corrode the equipment.

- Do not expose the equipment to X-ray or Microwave. This might cause severe damage to the equipment.
- When inserting SD card, check the direction.
- When supplying electric power to G-scan with 220/100V source, use the adapter supplied by GIT only.
- When using touch screen, use the specified stylus pen only. If you use other sharp or keen object on the touch screen, it can be damaged severely.
- Do not store the battery in the hot area. It may reduce the longevity of battery.
- If G-scan with battery pack has to be stored for a long time(over 3 months), the environmental condition(Temperature: 23±5℃, Humidity: 65±20%RH, Battery Level Indicator: 2 of 3 levels) should be observed.
- When your eyes contact battery liquid, do not rub your eyes, but clean out them with fresh water. And contact doctor immediately.
- Do not expose the LCD to humidity.
- When LCD is broken, the liquid crystal material will be flown out. Do not contact liquid crystal. If you contact it, clean it out immediately with soap and water.
- When LCD surface is contaminated, clean it using soft clothes with alcohol.
- Do not get volatile material except alcohol to LCD surface.
- Do not lay any heavy object down on LCD panel.
- After using for a long time, conduct zero calibration to the touch screen.

Hardware

Specification A-01-001
Introduction of component A-01-002

Specification

Hardware **Module: A-01-001**

Main Specification

Item		Specifications
Micro Controller		ARM9 (S3C2440A) @400MHz
Memory		NOR Flash Memory 16MB
		NAND Flash 64MB
		SDRAM Memory 32MB×2
External Memory		2GB
Temperature	**Operating**	0℃~45℃(32˚F~113˚F) : Battery Charging
		0℃~50℃(32˚F~122˚F) : Battery Discharging or without Battery
	Storage	-10℃~70℃(14˚F~158˚F) (Refer to cautions of manual)
Relative Humidity	**Operating**	Noncondensing @ 0℃~10℃(32˚F~50˚F)
		90%RH @ 10℃~30℃(50˚F~86˚F)
		70%RH @ 30℃~50℃(86˚F~122˚F)
	Storage	Noncondensing @ -10℃~70℃(14˚F~158˚F) (Refer to cautions of manual)
LCD		5.6″ TFT Analog LCD (480 × 234 pixel)
Input Devices		Power ON/OFF Key, Enter Key, ESC Key, Arrow 4 Keys, Functional 6 Keys
		Touch Screen 5.6 ″
External Lamps		2 Color LED × 3 (Power, DLC, Option)
Sound		Buzzer 1 Tone

Rechargeable Battery	Li-Ion Polymer 2100mAh 1cell
Operating Voltage	7~35VDC
Housing	PC + ABS & TPE Shroud
Dimension	194×132×59 mm
Weight	About 900g(Body weight including battery Pack)

Communication Interface

Item	Specifications
External input/output device	USB Host, USB Slave (USB 1.1)

Vehicle Communication Interface

Item	Specifications
CAN	ISO - 11898, ISO - 11519
K-Line/L-Line	ISO-9141, ISO-9141-CARB, KWP-2000
Commercial Vehicle	SAE-J1708, RS-232C
Data/Control Line	Melco Pull-Down UART

Added interface

Item	Specifications
VSS	Vehicle Speed Simulation
Voltage Output	5~20 VDC

AC/DC Adapter

Item	Specifications
Input Voltage	100~240 VAC
Frequency	50/60 Hz
Input Current	0.8 A
Output Voltage	12 VDC
Output Current	3 A

FCC ID: TMGG1PDDMN001

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

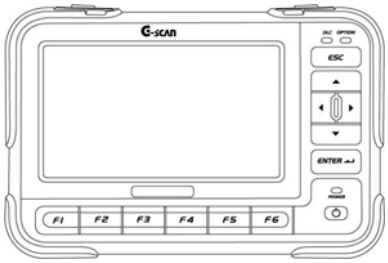
CAUTION: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

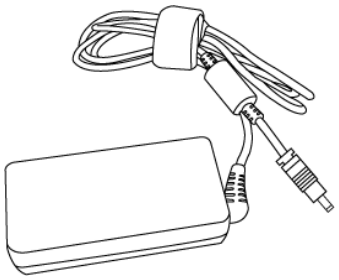
This device complies with part 15 of the FCC Rules.
Operation is subject to the following two conditions:
(1) This device may not cause harmful interference.
(2) This device must accept any interference received, including interference that may cause undesired operation.

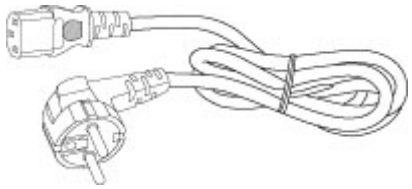
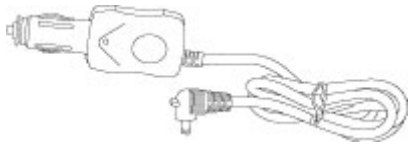
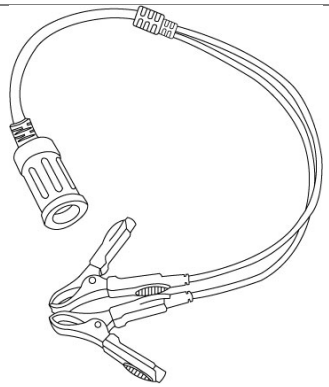
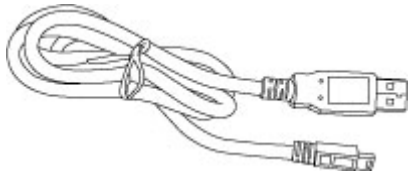
Introduction of Components

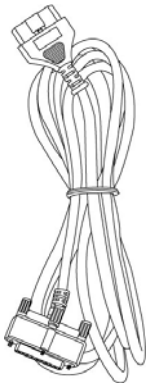
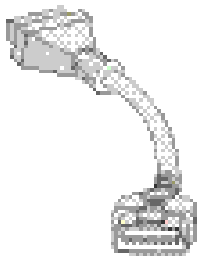
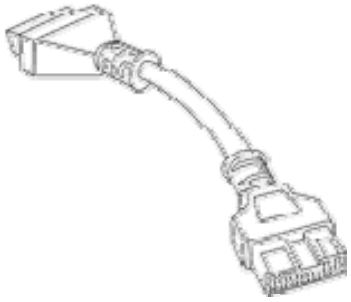
Hardware **Module: A-01-002**

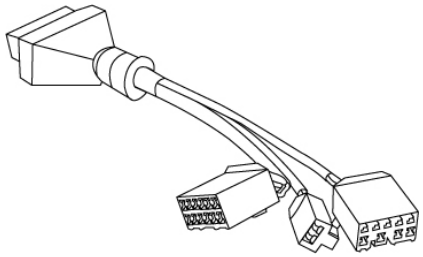
G-scan Hardware Components

Part	Description	Qty.
	Part Name: G-scan Main Module P/No:G1PDDMN001 G-scan main module for communication with vehicles.	1
	P/Name: Stylus Pen P/No: G1PDDMK020 Operating touch screen of G-scan. When using the touch screen, use this stylus pen only.	2
	P/Name: String - Stylus P/No: G1PDDMN003 A spring type string for preventing the stylus pen from being lost.	1
	P/Name: Hand Strap P/No: G1PDDMN002 Preventing damages by falling during using G-scan.	1

Part	Description	Qty.
	P/Name: User's Manual P/No: G1PHTZN101 Describing the basic information for operation of G-scan.	1
	P/Name: CD (S/W) P/No: G1PHTDP001 CD includes the PC utility program. The PC utility supports G-scan update and G-scan system recovery.	1
	P/Name: Carrying Case P/No: G1PDDHA001 Preserving G-scan main module and components. For preventing from being damaged and lost, G-scan should be stored in this case after using.	1
	P/Name: AC/DC Adapter P/No: GHDM-260001 Adapter for supplying power to G-scan main module from AC power	1

Part	Description	Qty.
	P/Name: AC Power Cable P/No: GHDM-273000 Cable for AC/DC adapter The socket plug for AC power cable can be different dependent on each country. Please purchase the right plug if it doesn't match with your country's electrics specification.	1
	P/Name: Cable-Cigar P/No: G1PDDCA002 Supplying external power to G-scan using cigarette lighter terminal.	1
	P/Name: Cable-Battery P/No: GSTA-37210A Connecting the Cable – Cigar (P/No: G1PDDCA002) to the battery terminals.	1
	P/Name: CABLE-mini USB P/No: G1PDDCA003 Cable for communication between G-scan and PC	1

Part	Description	Qty.
	P/Name: CABLE-DLC P/No: G1PDDCA001 DLC main cable for communication between G-scan module and (16 pin) OBD-II diagnosis connector on vehicle.	1
	P/Name: Adap.(16-20R) P/No: GHDM-244000 DLC Adapter cable [16pin to 20pin(R)] for Main DLC cable (P/No: G1PDDCA001) and 20-pin diagnosis connector on vehicle. 20pin (R) connector is GRAY in color.	1
	P/Name: Adap. (Self Test Jig) P/No: GHDM-24D000 This self-test adapter is used for self-diagnosis function that is described in a separate chapter. Do not use this adapter except for its specified purposes. For more information about self-diagnosis, see chapter (Module: A-02-006) Self-test adapter.	1
	P/Name: Adap. (16-12) P/No: GHDM-245000 This adapter is connected between Main DLC cable(P/No: G1PDDCA001) on G-scan module and 12pin diagnosis connecter on some vehicles.	1

Part	Description	Qty.
	P/Name: Adap. (10-8-2) P/No: GHDM-247000 DLC adapter cable for reprogramming and setting Remote Keyless Entry(RKE). 3 different connectors each(10, 8 and 2pins) compose the other side of this 16pins diagnosis connector. This adapter is used with the main DLC cable(P/No: G1PDDCA001) , while connected to G-scan module.	1
	P/Name: G-scan Battery Pack P/No: G1PDDMN010 Rechargeable battery (P/No:G1PDDMN006) is embedded.	1

- Please check above items at receiving the product for the first time.
- The optional item is to be sold additionally.

Basic Usage of G-scan

Power supply A-02-001
Power ON/OFF A-02-002
Description for Main Components of H/W A-02-003
Description for layout of S/W screen A-02-004
Connecting the DLC cable A-02-005
Self Test Adapter A-02-006

Power Supply

Basic Usage of G-scan | Module: A-02-001

1. Supply external power

There are 4 methods for supplying external DC power to G-scan.

- With DLC cable(P/No: G1PDDCA001)
- From the cigar lighter terminal in Center Facia with cable-cigar (P/No: G1PDDCA002)
- From the battery of vehicle through cable-battery(P/No: GSTA-37210A)
- From the AC/DC adapter(P/No: GHDM-260001)

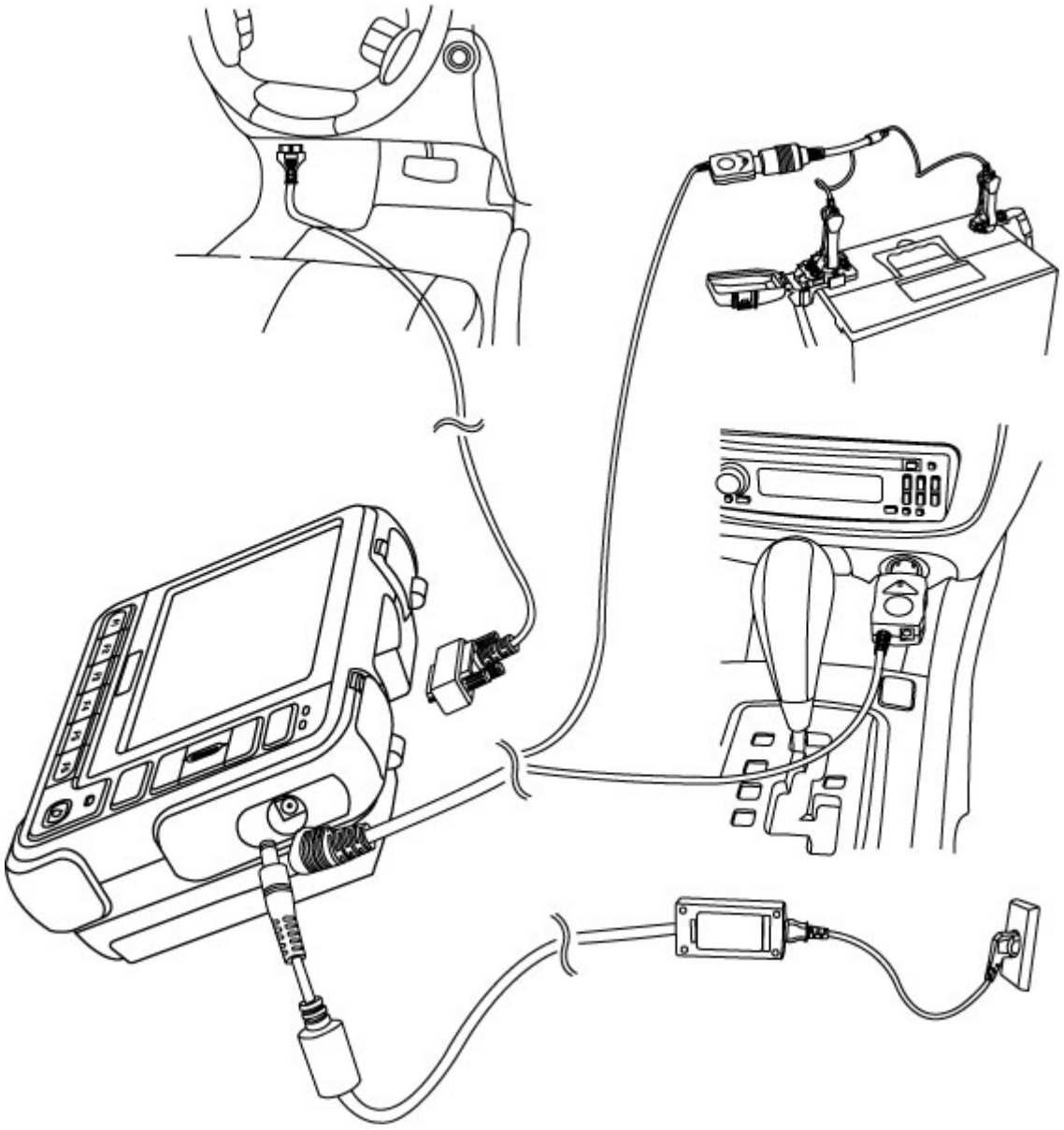
Caution

<Figure 1: Low Voltage Warning for Rechargeable Battery>

<Figure 1> is the message warning the low battery. If you see this message, supply the external power immediately.

Otherwise, G-scan will be turned OFF automatically.

How to connect the external power



<Figure 2: Connect the External DC power to G-scan>

Description of Power Supplying Method

Power supply with the DLC cable

The vehicle with diagnosis connector terminal of the 20-Pin connector or which is satisfying the OBD-II communication regulation can get electric power from the DLC cable without any additional power line.

Note:

The DLC connector, in general, is located on the lower part of the driver's front panel. This location may be different somewhat. Please check the correct location before connecting.

From the cigar lighter terminal

Using the Cable-Cigar(G1PDDCA002), the electric power can be supplied.

Note:

When using the Cable - Cigar, the power will be off during cranking of the engine. If your G-scan does not have rechargeable battery and you diagnose vehicle relating to the cranking of engine, use other power supplying method.

From the vehicle battery

When power is supplied from the vehicle battery, the electric power can be supplied without interruption.

Caution at connecting the vehicle battery

- Do not get the battery power line to the driving part in the engine room.
- Do not reverse the positive(+) and negative(-) terminals.

From the AC/DC adapter

Using the AC/DC adapter, the electric power can be supplied to G-scan. When updating G-scan, use the AC/DC adapter for supplying stable power to G-scan.

Warning

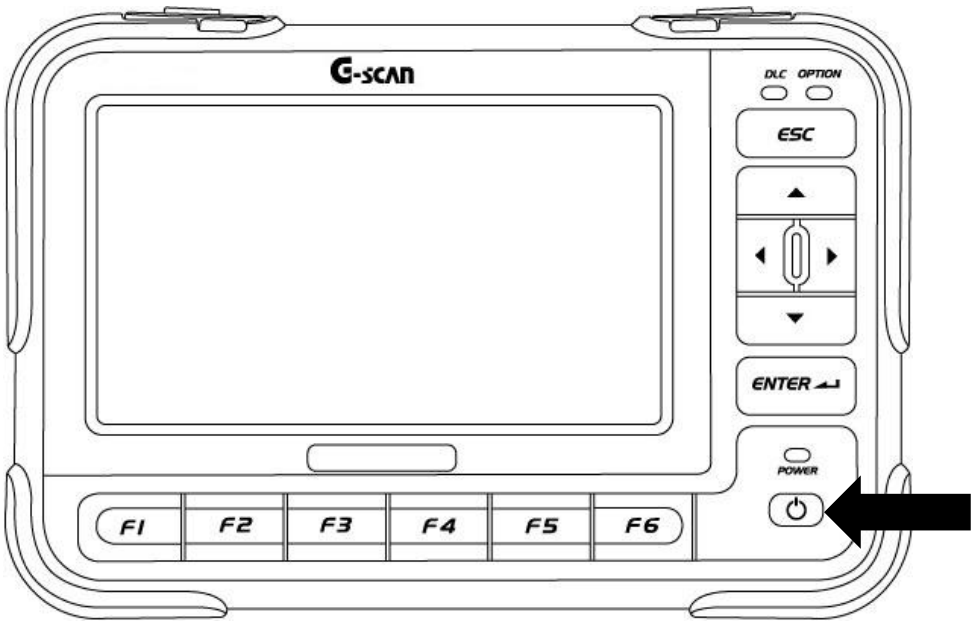
Use only the AC/DC adapter(GHDM-260001) supplied by G.I.T for G-scan. G.I.T has not responsibility for the damage by using other AC/DC adapter.

Caution

- ✓ When communicating with vehicle (for all vehicle diagnosis function with DLC cable), G-scan should be connected with vehicles battery directly or indirectly(DLC).
- ✓ For updating G-scan, connect the AC/DC adapter for supplying the stable power.

Power ON/OFF

Basic Use of G-scan **Module: A-02-002**



<Figure 1: Location of the Power S/W>

Power ON/OFF Method

Power ON

1) Please connect the power before turn on G-scan.

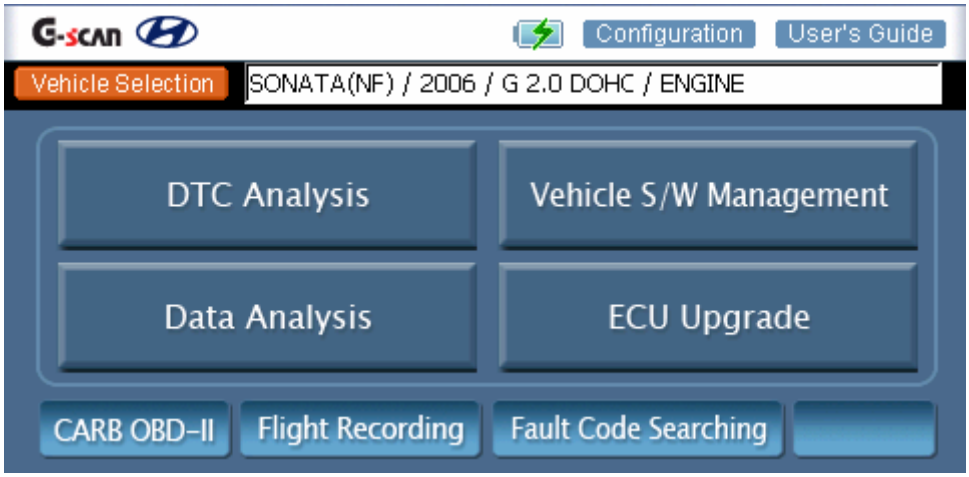
> **Notice:**
> For the details of power connection to G-scan, refer to "Power Supply" of the "Basic usage of G-scan".

2) Press the "Power Switch" shown in <Figure 1> until the DLC LED and OPTION LED located on upper right of G-scan are turned from yellow to green. (It requires about 0.5 second.)

Notice

For the lightening color of POWER LED, refer to the "Description for Main Component of H/W" of the "Basic Usage of G-scan" (Module: A-02-003).

After booting G-scan normally, the main screen of G-scan will be shown as <Figure 2>.



<Figure 2: Main Screen of G-scan>

Power OFF

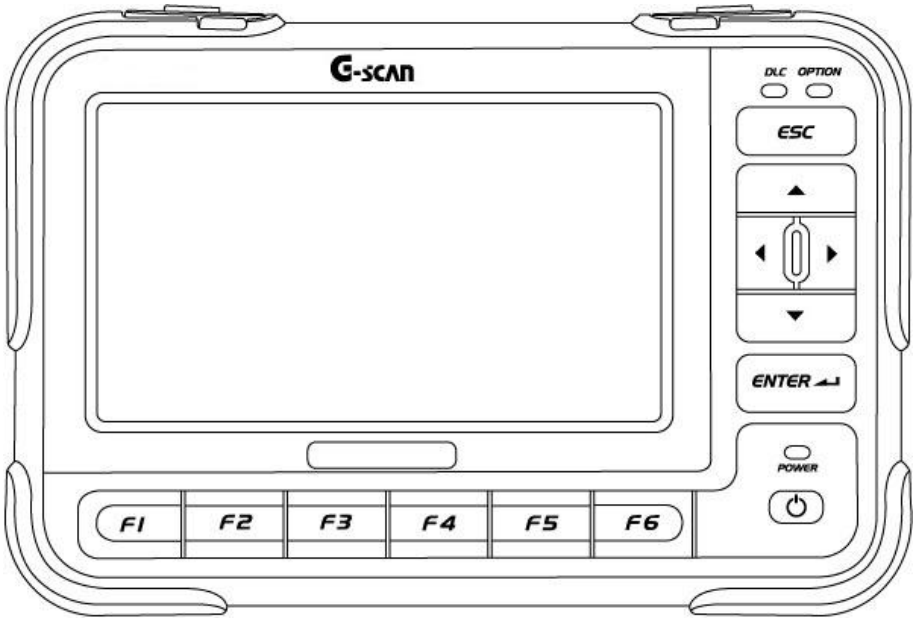
Press the power switch for 2.5 seconds and G-scan will be turned off.

Description for Main Components of H/W

Basic Use of G-scan **Module: A-02-003**

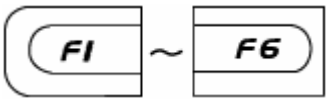
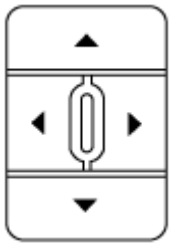
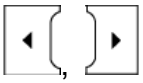
Even G-scan is operated through the touch screen, for more fluent operation, please be familiar with the functions and positions of the buttons, connecters and LEDs.

Touch Screen and Hardware Buttons



<Figure 1: Front view of G-scan>

1. Description of front side of main module

①	**TOUCH SCREEN**	Use the specified stylus pen at selecting functions and items on the touch screen
②		Buttons for operating functions relative to buttons on the bottom of diagnosis screen.
③		◆ Exits from the screen currently executed. ◆ Moves to previous process in vehicle selection screen ◆ Closes the pop-up window.
④		◆ Executes the item or function selected on the current screen ◆ Moves to the next screen in vehicle selection screen
⑤		◆ Moves the cursor to the wanted item or function on the current screen. ◆ At diagnosing on dual mode, you can select the diagnosing window with  , and the items in the diagnosing window with .
⑥	**POWER BUTTON**	ON/OFF the power of G-scan.
⑦	**POWER LED**	LED showing the power condition.
⑧	**DLC LED**	LED showing the communication condition with the ECU.
⑨	**OPTION LED**	LED showing the communication condition with supplementary optional item connected to G-scan.

Note:

As the CALIBRATION of the touch screen may be changed by the temperature variation or passing of the time, reset the CALIBRATION of the touch screen at the "Setup" in the Configuration.

Notice

For the details relating to the power ON/OFF, refer to the "Power ON/OFF" in the "Basic usage of G-scan" <Module: A-02-002>.

- **POWER LED Lighting Condition**

		Charging	Full Charged
Battery Pack Installation	**With DC power**	LED (Red) ON	LED (Green) ON
	Without DC power	LED OFF	LED OFF

Note:

If the battery pack is not installed, when the external power is connected, the Power LED light will be Green.

Notice:

For the details of the power supply, refer to the "Power Supply" in the "Basic usage of G-scan" <Module: A-02-001>.

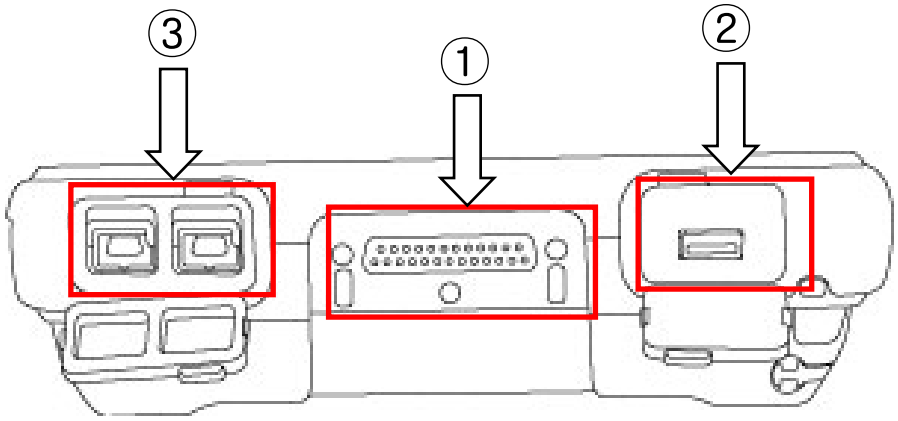
- **DLC LED Lighting Condition**

	LED operating condition
Communicate with Vehicle Control Module	LED (Green) Flicker
Communication with Vehicle Control Module is OFF	LED OFF

- **OPTION LED Lighting Condition**

Communication by USB port (Host) of G-scan main module	LED (Green) Flicker
Others	LED OFF

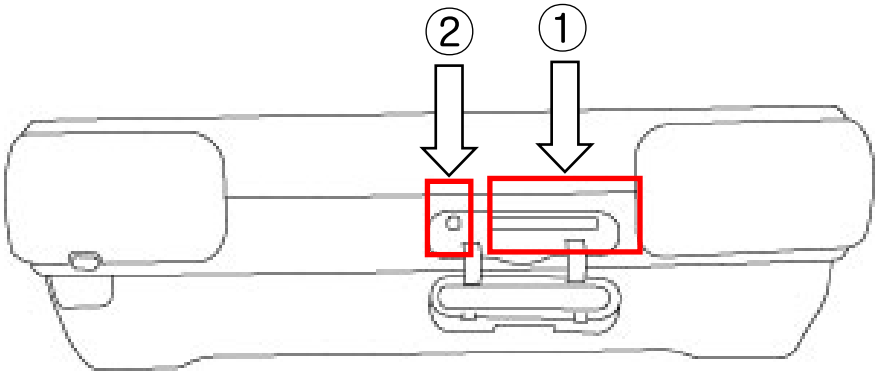
2. **Description for the Communication Connecter and COM port**



<Figure 2: G-scan COM port>

①	**DLC**		Connecter for connecting DLC cable to communicate with vehicle Control Module.
②	**OPTION**		The USB Host port prepared for expanding the function by connecting to additional equipments in the future.
③	**PC COMM**	**PASS-THRU**	The USB port for PC to communicate with vehicle through G-scan in the future.
		DOWNLOAD	The USB port for maintenance of G-scan.

3. SD Memory Slot & Reset Button



<Figure 3: SD Memory Slot and Reset Button>

①	**SD Memory Slot**	Slot for inserting the SD card restoring the various data for driving G-scan.
②	**RESET Button**	When program has errors with the OS or others, press the Reset button to initialize G-scan.

Note:

1. To eject SD card from slot, push the SD card once.
2. To reset G-scan, use stylus pen to push the reset button.

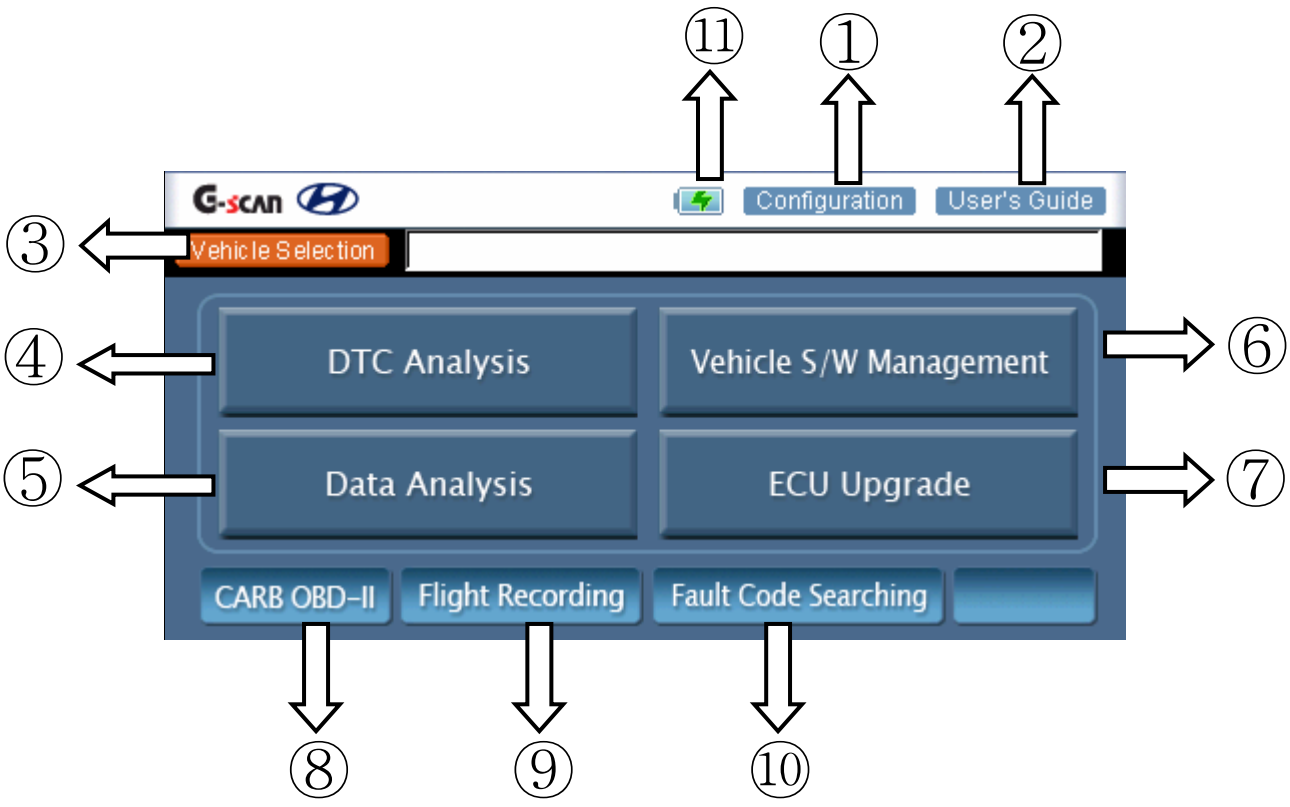
Description for layout of S/W screen

Basic Use of G-scan **Module: A-02-004**

Unlike the conventional diagnostic tool, G-scan is equipped with touch screen. The images on G-scan screen are not simple pictures but the functional buttons for operation.

This chapter describes the functions and marks commonly applied to the main screen of G-scan and other diagnosing screen. Please be familiar with these descriptions to operate G-scan freely.

Components of the main screen



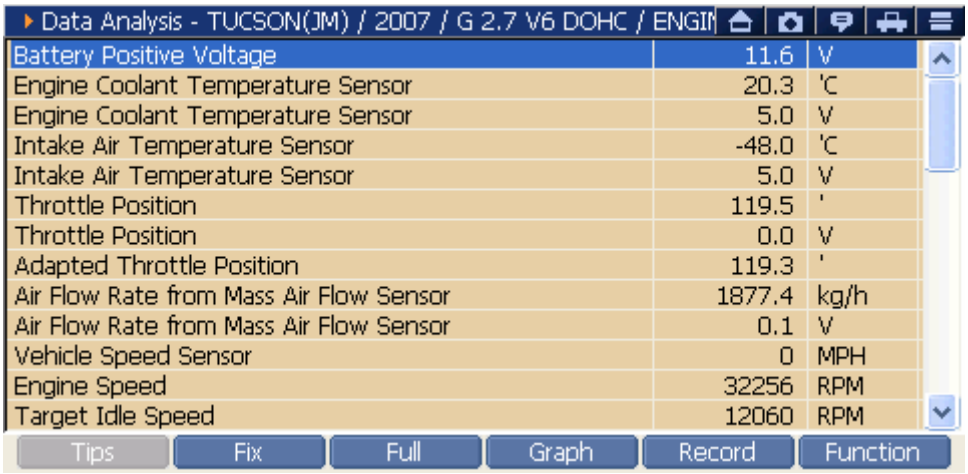
<Figure 1: Components of the Main Screen>

Description for the components of the main screen

Configuration and User's Guide		
①		Configure the "Setup", "User Information", "Software version" and "Self-diagnosis".
②		Summarized user's manual.
Vehicle Selection		
③		Selects the vehicle model and system for diagnosing. * The selected system will be shown in the blank box.
Diagnosis Menu		
④		Shows the Diagnosis Trouble Code(DTC) on the screen by communication with the selected vehicle system. Fault code will be updated by continuous communication.
⑤		Checks the current data of ECU.
⑥		Supports supplementary vehicle S/W function except the basic diagnosing functions (DTC, Current Data, Actuation Test).
⑦		Supports the ECU reprogramming.
⑧		Diagnoses the vehicle applied with OBD-II communication protocol.
⑨		Recording the current data for review and analysis.
⑩		Searches the DTC of selected systems, more than one system can be searched at one time.

⑪		Mark for charging battery in connection with external power (Lightening mark: Red)
		Mark for full charged battery in connection with external power (Lightening mark: Green)
		Mark remained battery capacity in use (as battery is used, the available battery amount is reduced.)
		No rechargeable battery in the battery pack

Diagnosis Screen Layout



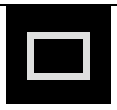
<Figure 2: Diagnosis Screen>

Showing the Diagnosing System and Hot Key

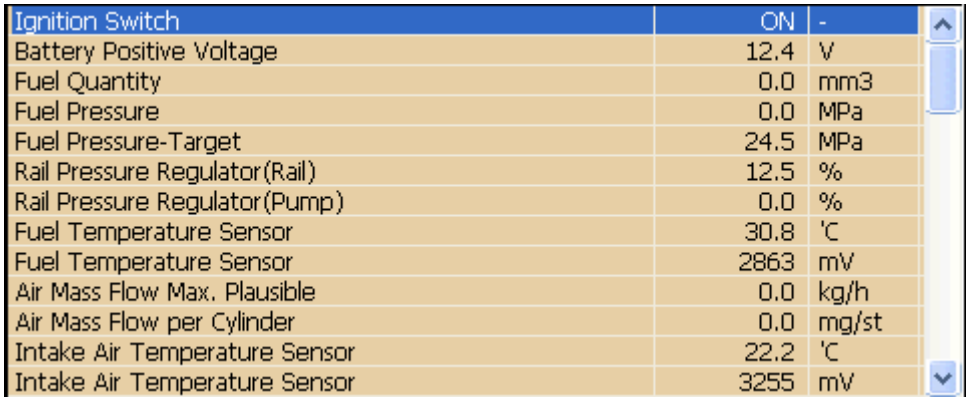
<Figure 3. Selected vehicle system and Hot Keys>

The diagnosing item and the model under process are shown. For the icons, refer to the following table.

Description for the Common Icons in Diagnosing Window

	Closes the current window and, return to the initial main screen.
	Captures the current screen and save. The captured screen will be saved at the "Storage Card\G-scanImage\Model" folder of SD card.
	Shows the information of the system currently communicating in detail.
	Changes the system for diagnosing.
	Changes to the dual mode from the overall screen.
	Changes to the overall screen from the dual mode.

Window for current data

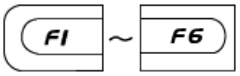


Ignition Switch	ON	-
Battery Positive Voltage	12.4	V
Fuel Quantity	0.0	mm3
Fuel Pressure	0.0	MPa
Fuel Pressure-Target	24.5	MPa
Rail Pressure Regulator(Rail)	12.5	%
Rail Pressure Regulator(Pump)	0.0	%
Fuel Temperature Sensor	30.8	'C
Fuel Temperature Sensor	2863	mV
Air Mass Flow Max. Plausible	0.0	kg/h
Air Mass Flow per Cylinder	0.0	mg/st
Intake Air Temperature Sensor	22.2	'C
Intake Air Temperature Sensor	3255	mV

<Figure 3: Current data>

Screen Function Button

<Figure 4: Screen Function Button>

Function button 

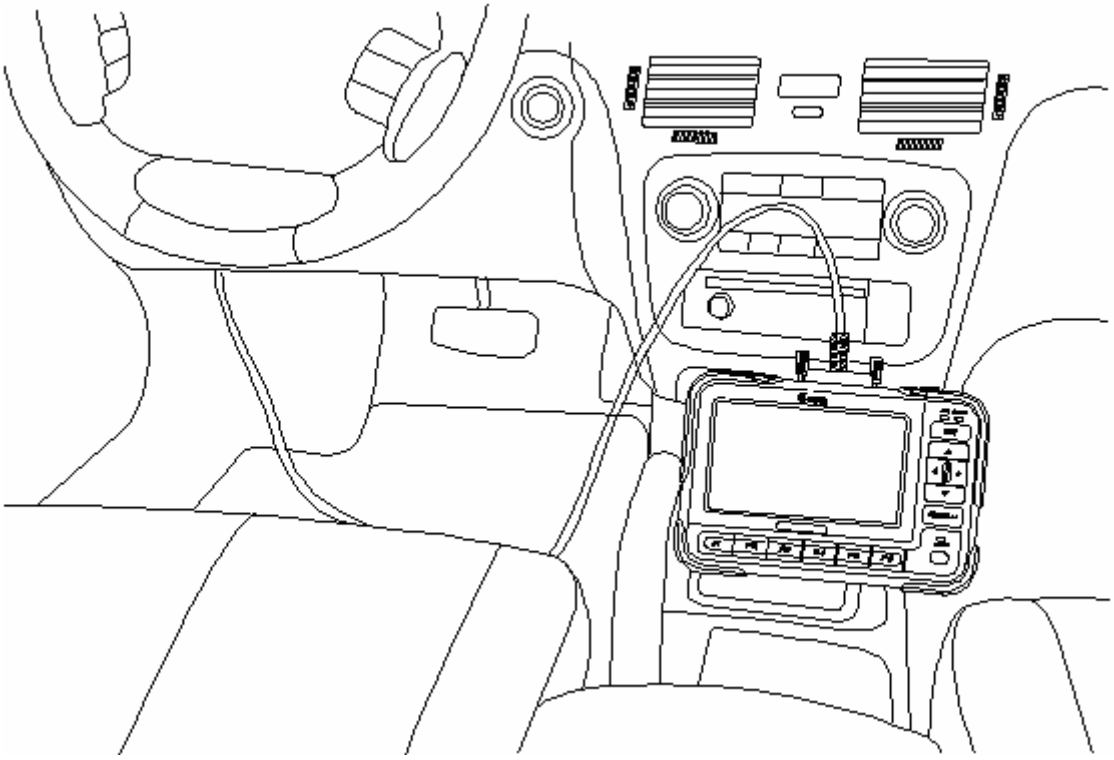
and corresponding screen function button are same.

Note:
The screen function button will be changed according to the diagnosis mode (Activated window on the dual mode).

Connecting the DLC cable

Basic Use of G-scan **Module: A-02-005**

For the communication between the control module installed on the vehicle and G-scan, the DLC cable should be connected.



<Figure 1: Connecting the DLC cable>

Vehicle with the OBD-II connector

OBD-II standard connector support communication and power.

Note:

In general, the DLC connector is located on the bottom part of the driver's front panel. According to the kinds of vehicle it may be different. Therefore, before connecting, please check the correct position of DLC Connector.

Vehicle with non OBD-II Connector

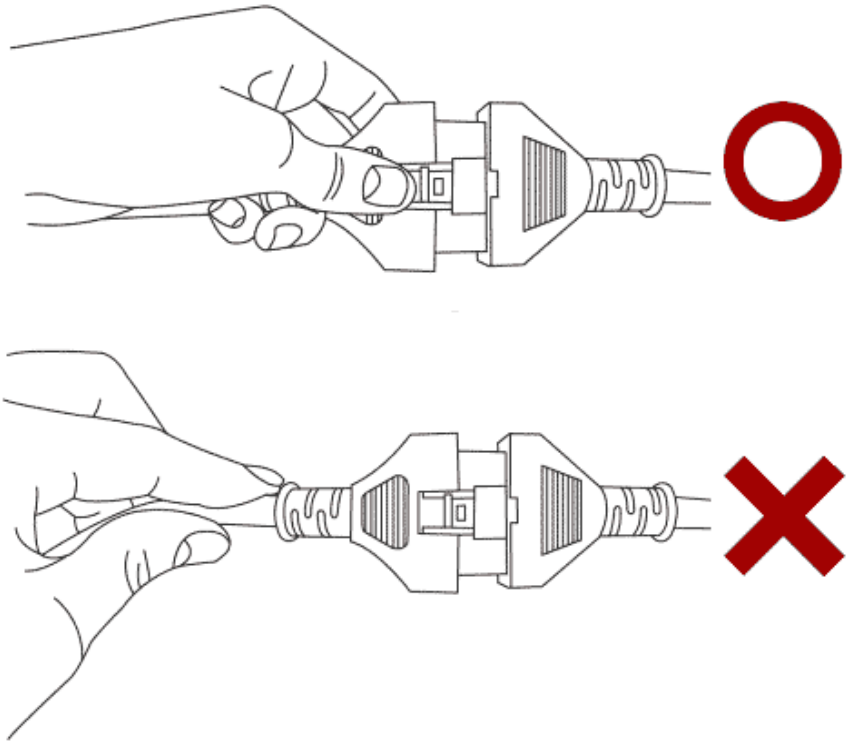
- **Connecting the power**
  For some vehicle of which power is not supplied through connector, connect the power line additionally.

- **Connecting through additional adapter**
  For some vehicles, additional adapter is required. After connecting the adapter to the 16 pins connecter of the DLC cable, connect it to the diagnosis connecter of the vehicle.

Notice:

For the detailed information, refer to "Power Supply"<A-02-001> in the "Basic Usage of G-scan".

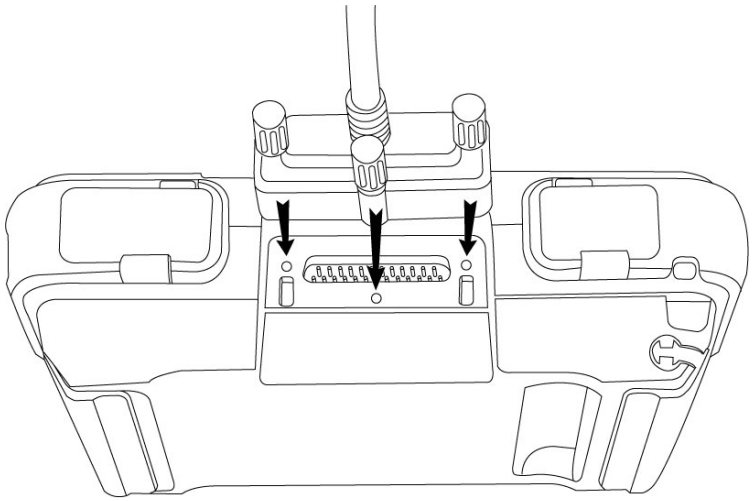
Caution



<Figure 2: Disconnecting DLC cable>

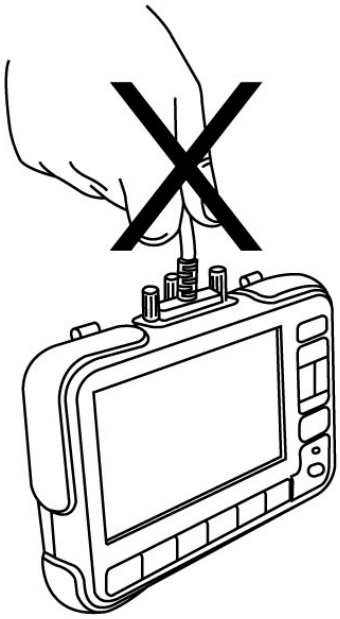
Before disconnecting the main DLC cable, release the lock and disconnect. Do not pull the wire or distort it. It may cause the damages on the cable or connector.

Caution



<Figure 3: Connecting the main DLC to G-scan>

Connecting the main DLC connector to G-scan, tighten the 3 clamping screws to the body of G-scan firmly.



<Figure 4: Caution for carrying G-scan>

Carrying G-scan, do not hold the DLC cable. Hold the main module or hand strap.

The self-test functions are used to check the Main DLC cable (P/No: G1PDDCA001) and specific related circuits. Not all G-scan circuits are checked through the self-test functions.

Purpose and Scope of Self Test (Semi-Test)

Basic operation of the self-test function is the loop-back theory.
Loop-back theory is verification between sent data from G-scan module and returned data, which passed through the pins of all the outside connectors during the self-test.

Some communication circuits such as high speed CAN, low speed CAN and SAE-J1708, cannot be checked with loop-back tests.

There are 2 self-test steps included in the Self Test function on the Configuration menu.

- **Step A:**

Performs test functions by automatically changing circuit configurations at the inner end of DLC connector of G-scan module.

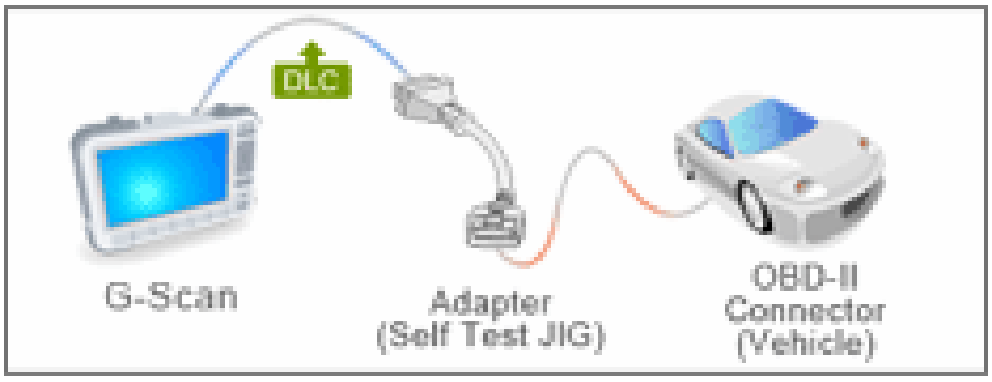
● **Step B:**

Performs test functions on the Main DLC cable using the self-test adapter (GHDM-24D000) which will short all the terminals (except power and ground functions) at the end of Main DLC cable.

This self-test function cannot determine open or short circuits in other adapter cables except Cable-DLC (P/No: G1PDDCA001).

Connecting the Self-Test Adapter (GHDM – 24D000)

Before performing the self-test function, connect the Main DLC cable (P/No: G1PDDCA001) between G-scan module and Self-test adapter (P/No: GHDM – 24D000). Then, connect the other side of Self-test Adapter to the OBD-Ⅱ Connector on the vehicle as shown in [Figure1].



<Figure 1: Installation of the Self-test adapter>

After installing the adapter, follow the instructions as indicated on the Self-Test screen located on the configuration menu.

Configuration

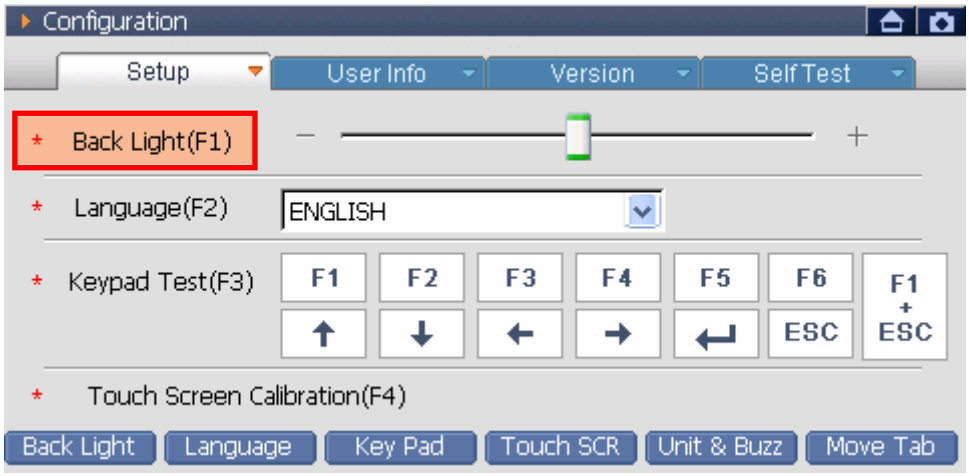
Setup A-03-001
User Information A-03-002
Version A-03-003
Self Test A-03-004

Setup

Configuration **Module: A-03-001**

Selecting Configuration in the main screen, "Setup" screen will be shown. In this item, the brightness of touch screen can be adjusted for the user's favor, the language can be selected and the operation of key pad and calibration of the touch screen can be controlled.

Introduction of the Setup Main Screen



<Figure 1: Setup Screen>

The descriptions for the screen function buttons in "Setup" are as follows.

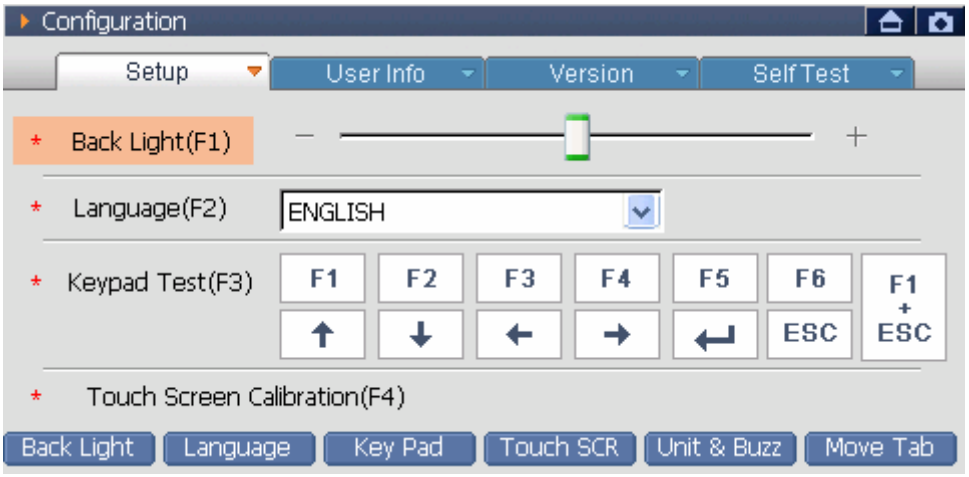
Back Light	Control the brightness of LCD screen.
Language	Change the language.
Key Pad	Checks the operations of the 12 function buttons.
Touch SCR	Calibrates touch screen.
Unit & Buzz	Sets the diagnosis data unit and the buzzer ON/OFF.
Move Tab	Moves to the next tab.

Operating Order and References

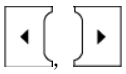
Screen Brightness Adjustment

1) How to select the "Back Light"

- Select button.
- Select the at the bottom of screen.
- Select the "Back Light(F1)" on screen.



<Figure 2: Back Light Adjustment>

Adjust the brightness using stylus pen or pressing the  on the key pad.

2) It can be adjusted at 5 levels. Screen will be brighter as it is adjusted to (+).

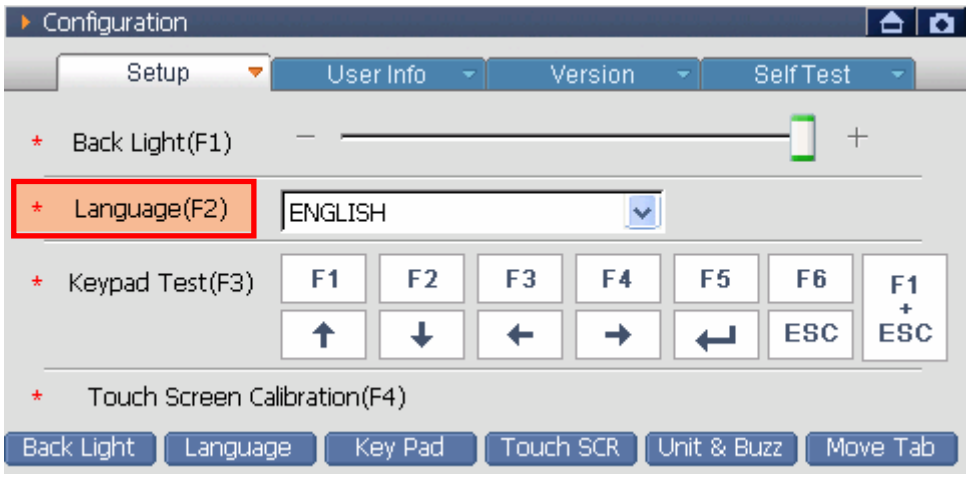
3) Move to another setup

- Using stylus pen, move to another setup if required
- Selecting the , move to the menu and use , buttons to move another setup if required.

Language Selection

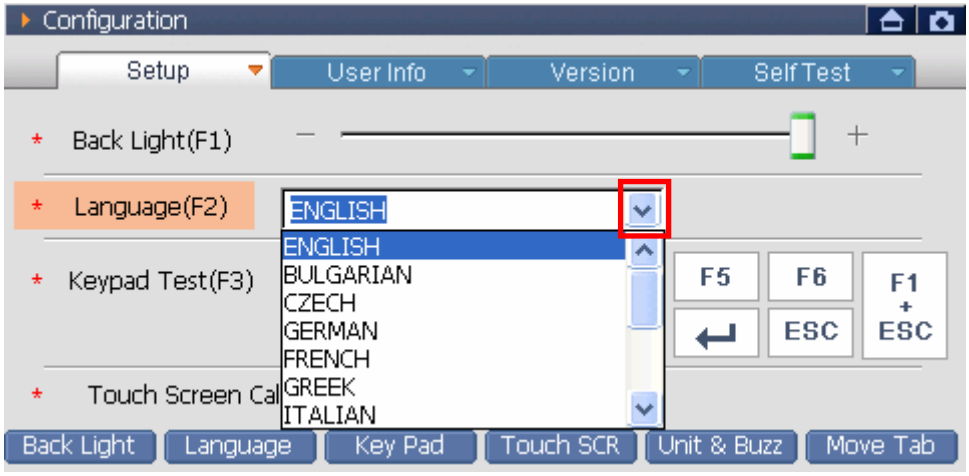
1) How to select the "Language".

- Select F2 button .
- Select the Language at the bottom of screen.
- Select the "Language(F2)" on screen.



<Figure 3: Move to Language Selection>

2) Using the stylus pen, select your language or press , and press the . Then language list will be shown.



<Figure 4: Language Selection>

3) Move to another setup

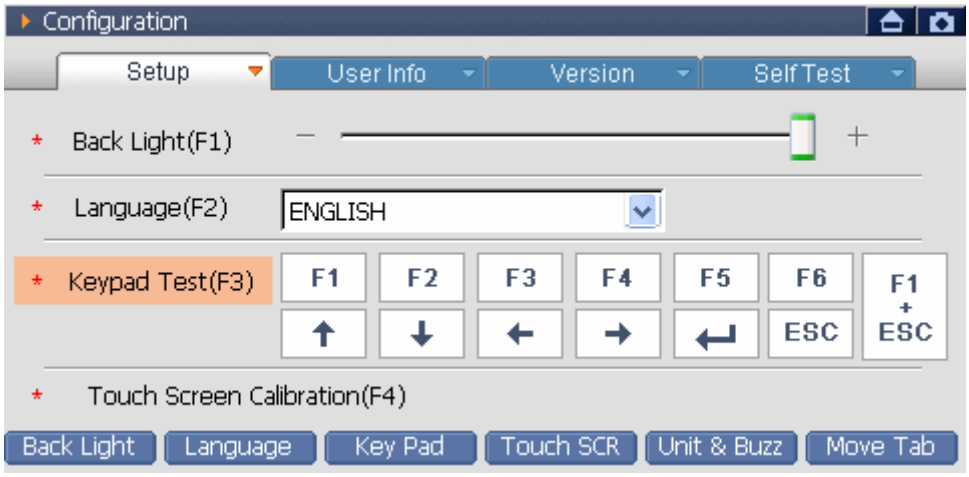
- Using stylus pen, move to another setup if required
- Selecting the

, move to the menu and use , buttons to move another setup if required.

Keypad Test

1) How to select the "Keypad Test"

- Select F3 button.
- Select Key Pad at the bottom of the screen.
- Select the "Keypad Test(F3)" on screen.



<Figure 5: Keypad Test>

2) Upon pressing the function button F1 ~ F6, arrow keys, ENTER, ESC, the color of selected item will be changed to orange. You can easily check the operational status of the button by the color change.

Note:

Pressing F1, ESC buttons at the same time allows users to move setup list using H/W button.

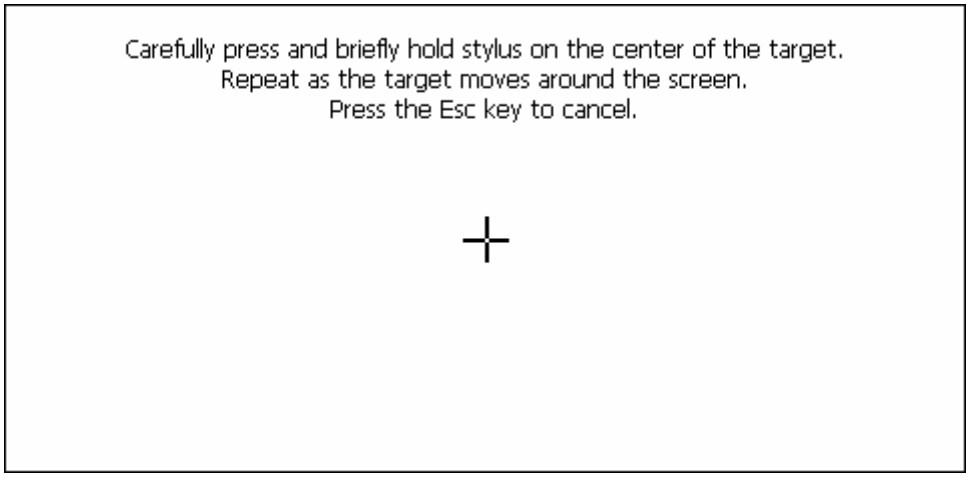
Calibration of Touch Screen

How to select the "Touch Screen Calibration(F4)", the screen will be shown as follows.

- Select

button.
- Select the

at the bottom of the screen.
- Select the "Touch Screen Calibration(F4)" on screen.



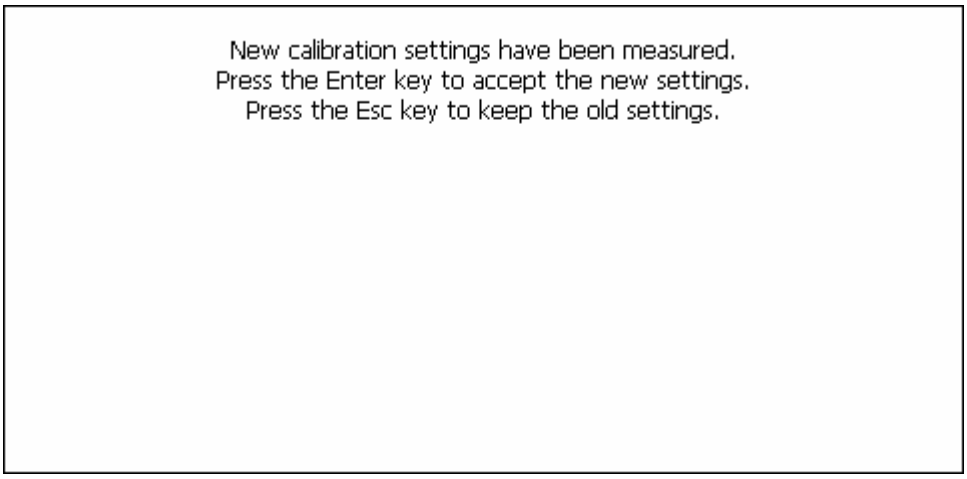
<Figure 6: Calibration of Touch Screen>

1) Select the center of (+) mark on the touch screen as shown in the above figure with the stylus pen.

* Totally 5 points are shown on the screen. Select all center points of the 5 marks.

2) After selecting 5 centers of (+) marks, message is shown as <Figure 7>.

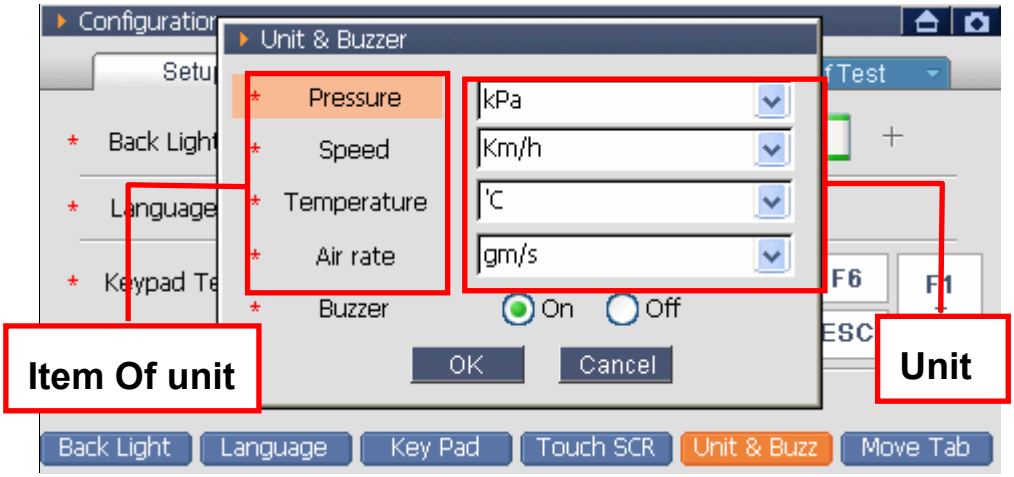
- ENTER : Save the new calibration and move to menu.
- ESC : Cancel the new calibration and move to menu.



<Figure 7: Completion of the Touch Screen Calibration >

Setup for Unit and Buzzer ON/OFF

1) Selecting Unit & Buzz or F5, following setup window will be shown.



<Figure 8: Unit & Buzzer setup>

2) Setup the Unit and Buzzer operation in the setup window.

- Using stylus pen, setup on the touch screen.
- Setup using the function button

①	▼ ▲	Select the item of unit
②	▶	Unit: Move to full down screen
		Buzzer: Move to On/Off
③	▼ ▲	Unit: Select the unit for display
		Buzzer: Select ON or OFF
④	ENTER	Unit: Move to setup list, after selection of unit.
		Buzzer: Move to setup list, after selection of ON or OFF.
Repeat ①~④, setting-up the unit		

3) After completing all items, select OK at the bottom of setup window.

Notice:

The selected unit at this Tab is displayed on the diagnosis mode.

Exit from "Setup"

After completing "Setup", move to other Tab.

- Select

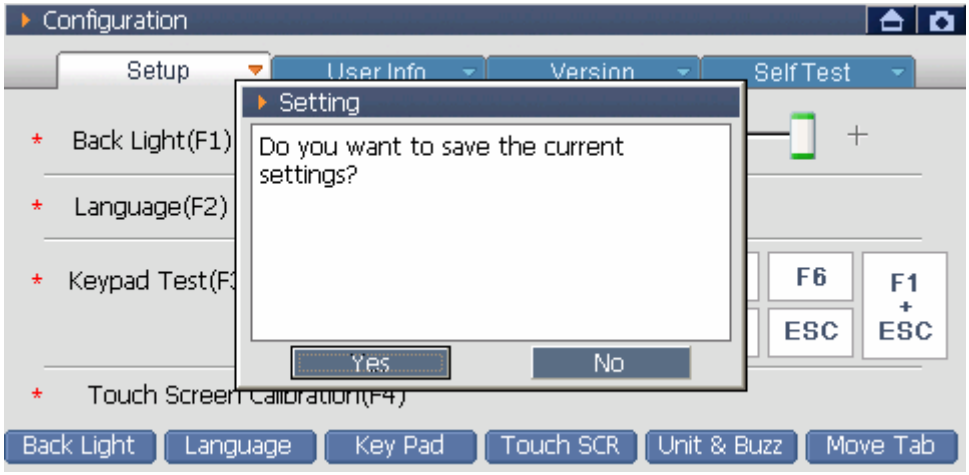
to move to "User Info".
- Using stylus pen, select the "Tab" on the upper portion of the touch screen directly to move.

Move to the main screen

- Select

to move to the main screen.
- Select at the top right of the screen to move to the main screen.

Selecting 'Move to main screen', following message will be shown.



<Figure 9: Save Message>

Yes	Save the setups and exit to the main screen.
No	Cancel the setups and exit to the main screen.

User Information

Configuration **Module: A-03-002**

This is how to input user's personal information.

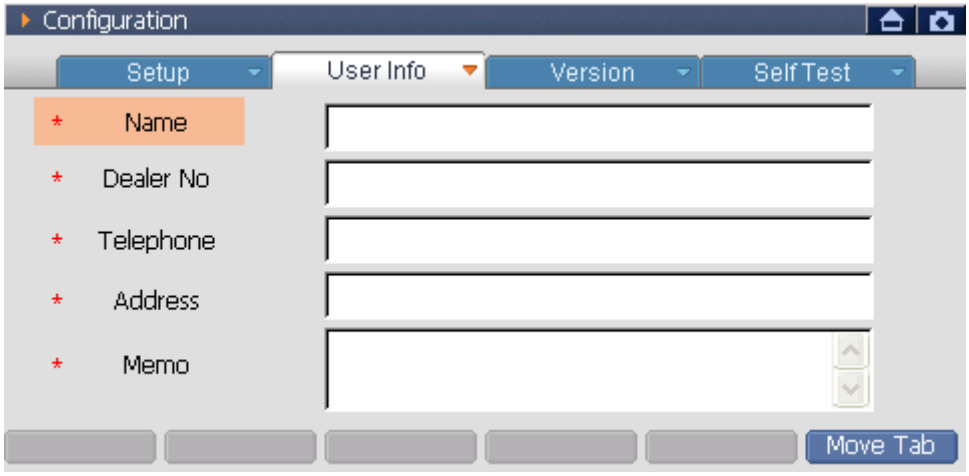
How to input the User Information

How to select the "User Info"

- Selecting the "User Info" on the touch screen using the stylus pen, following screen will be shown.
- Select the MOVE TAB or F6 button in the "Setup" to move to "User Info".

How to move in "User Info" lists

- Select the items on the touch screen using the stylus pen.
- Use ▲, ▼ to move and use ▶ to select.



<Figure 1: User Info Screen>

Input the personal information

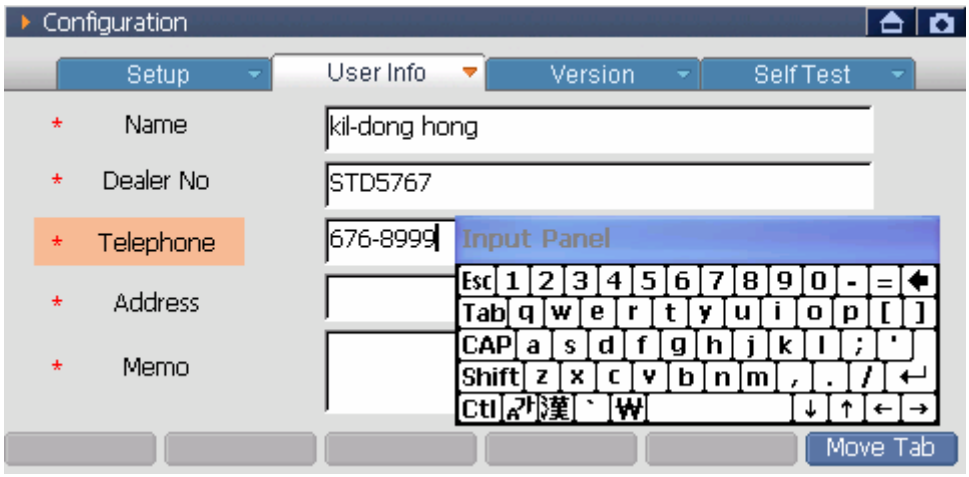
Use the stylus pen on the touch screen to input personal information. Inputting by using H/W buttons are not supported.

How to input

1) Using stylus pen, at the "User Info" screen, select the blank box or using ▲ ▼ and then select the ▶ then input panel will be shown.

2) Using the stylus pen, press the input panel on the touch screen to input the personal information.

3) Select esc or use stylus pen to move to next.



<Figure 2: Input Panel>

How to input the User Info:

① When the cursor move to blank text to prompt input panel.

② To input user information in the blank text by the input panel.

Note:

- To input user information in the blank text by the input panel.
- H/W button does not support to input the user information, please use stylus pen only.

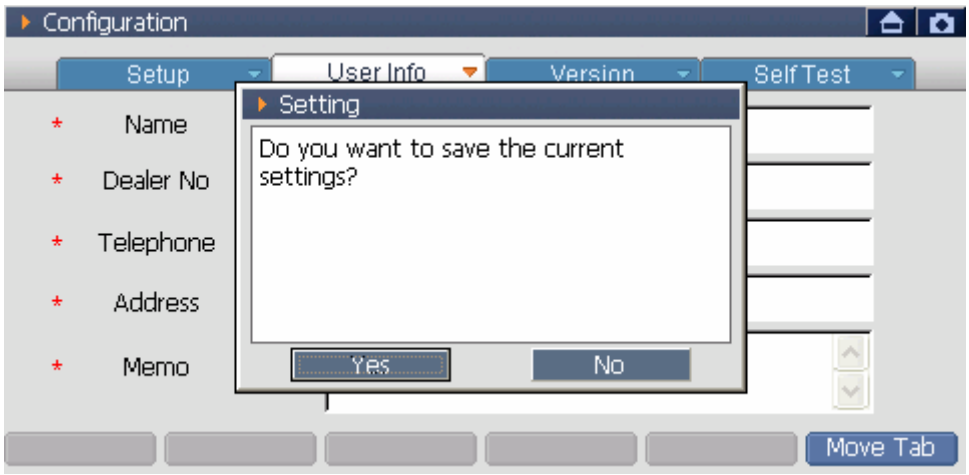
Exit from "User Info"

Move to other Tap after fill-out user information

- Select the F6 to move to "Version".
- Using stylus pen, select the next "Tab" to move.

Move to main screen

- Select ESC to move to the main screen.
- Select at the top right side of the touch screen to move to the main screen.



<Figure 3: Save Message>

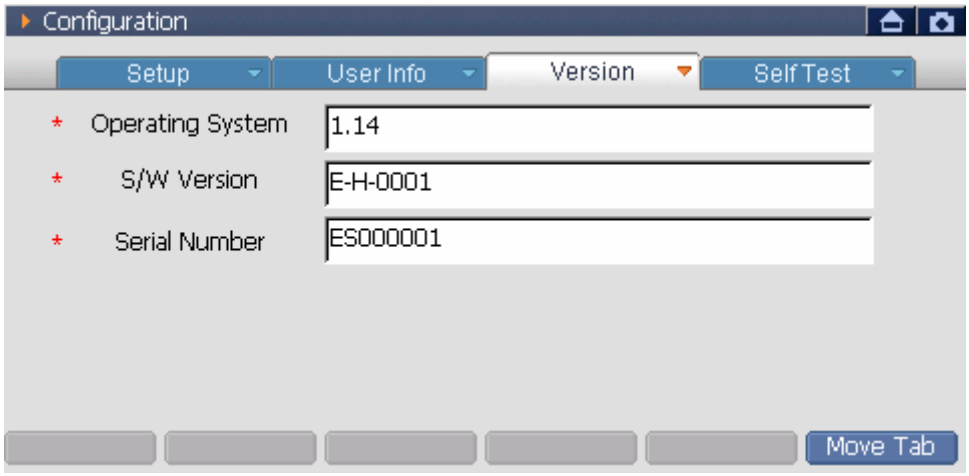
Yes	Save the setups and move to main screen.
No	Cancel the setups and move to main screen.

Version

Configuration **Module: A-03-003**

S/W versions and serial number can be checked.

Description of Version Information Screen



<Figure 1: Version Information Screen>

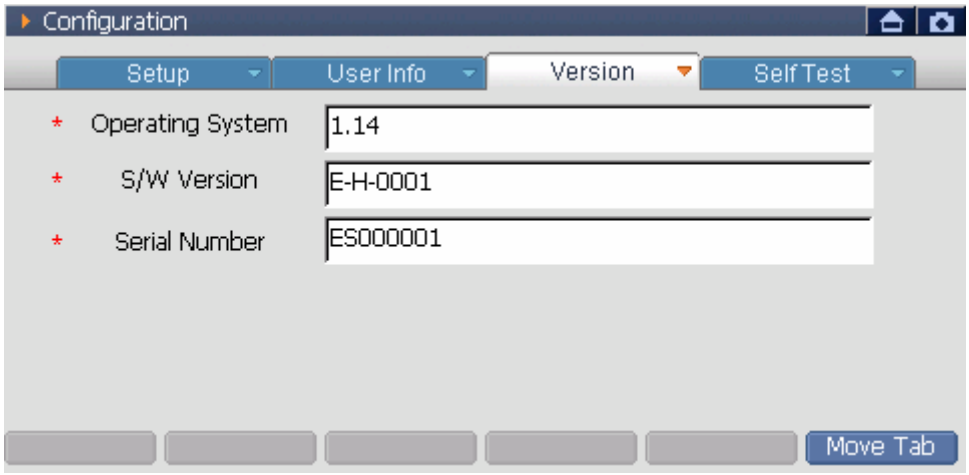
Operating System	G-scan OS version
S/W Version	S/W version on SD card
Serial Number	Serial number of G-scan main module

How to check Version

How to move to the "Version" item

- Using the stylus pen, select the Version on the touch screen to move to the "Version" screen.

- Press the MOVE TAB or F6 button in the "User Info" to move to the "Version".



<Figure 2: Version screen>

Exit from "Version"

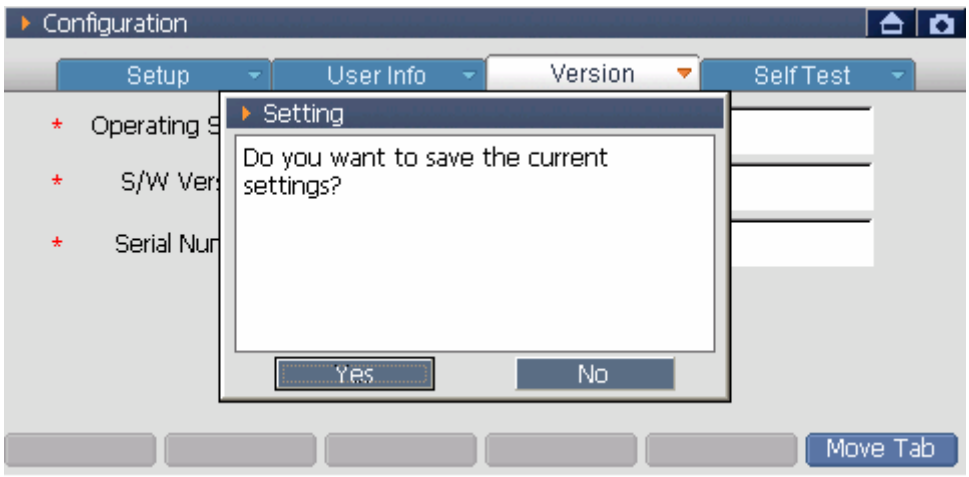
Move to other Tab after check the version.

- Select the F6 to move to the "Self Test".
- Using the stylus pen, select the Tab at the upper side of the touch screen.

Move to the main screen

- Select the ESC to move to the main screen.
- Select the at the top right side of the touch screen to move to the main screen.

Selecting 'Move to main screen', the following message will be shown.



<Figure 3: Save Message>

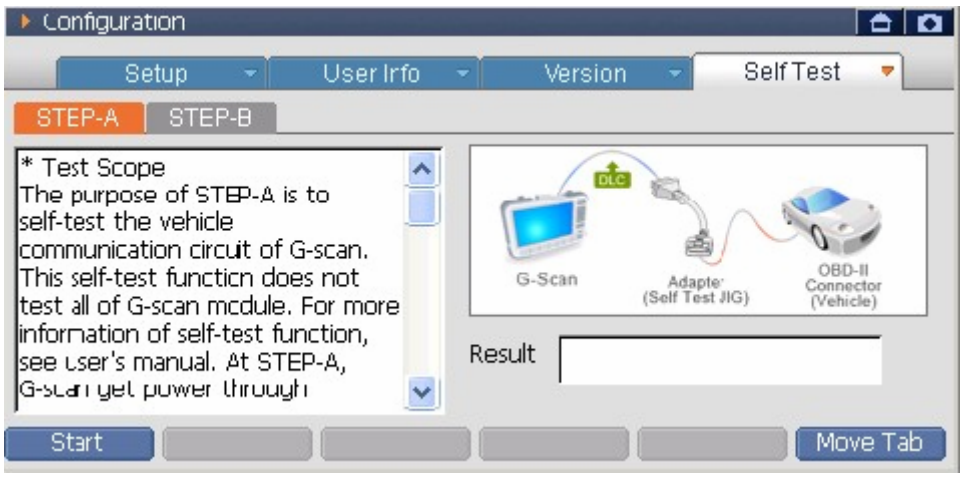
Yes	Save the setups and move to main screen.
No	Cancel the setups and move to main screen.

Self Test

Configuration **Module: A-03-004**

This is the function for checking if the circuits relating to the communication of G-scan and the DLC cable have defects or not. If G-scan has problems relating to the vehicle communication function, conduct the test following the instruction of the screen.

Description of Self Test Screen



<Figure 1: Description of Self Test Screen>

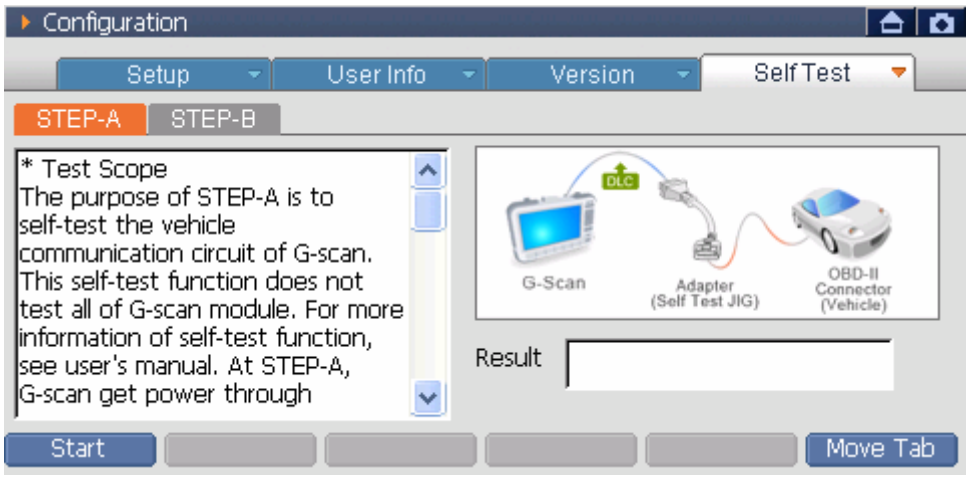
STEP-A	Checks the defects of circuits relating to the vehicle communication of G-scan.
STEP-B	Checks the defects of the DLC cable.
START	Start the Self Diagnosis Test.

Self Diagnosis Test

How to move "Self Test"

- Selecting the "Self Test" on the touch screen using the stylus pen, the following screen will be shown.

- Press the MOVE TAB or F6 button at "Version" to move to the "Self Test".

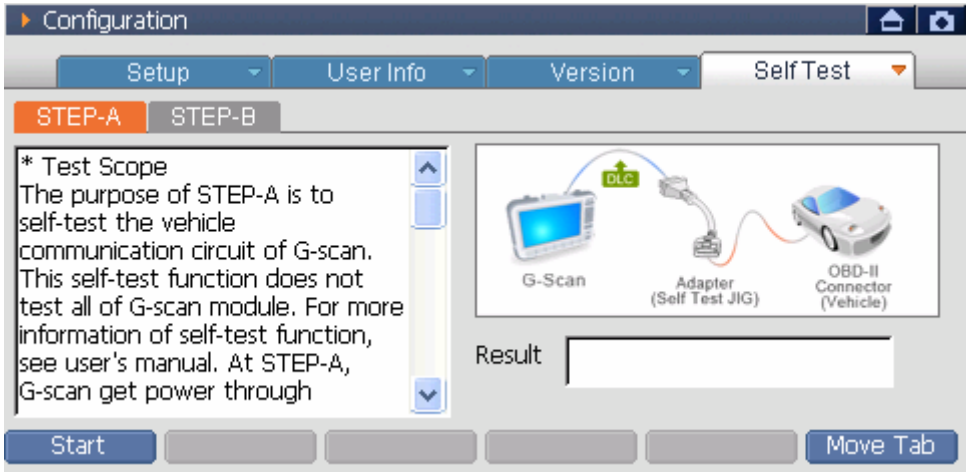


<Figure 2: Move to the Self Test>

- Using the stylus pen, select it on the touch screen or press buttons, to select STEP-A, STEP-B.

STEP-A Test

The purpose of STEP-A test is for diagnosing the specific vehicle communication circuit of G-scan. During proceeding with this test, the power is supplied by the DLC cable and the Self Test adapter. For the details of Self Test adapter, refer to the 'Connecting the Self Test adapter' in the 'Basic usage of G-scan'.



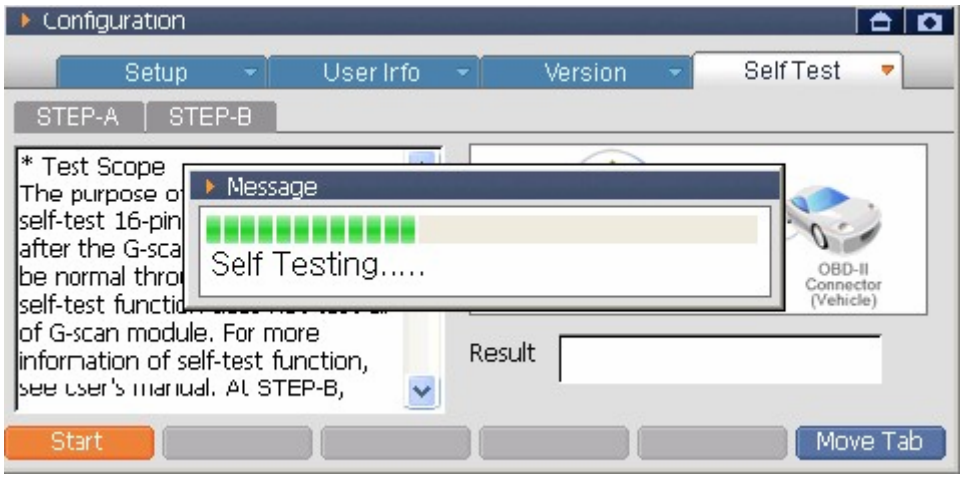
<Figure 3: STEP-A Screen>

How to test

1) Connect the DLC cable to G-scan and connect the Self Test adapter to the other end of DLC cable. Connect the adapter to the OBD-II connector of the vehicle.

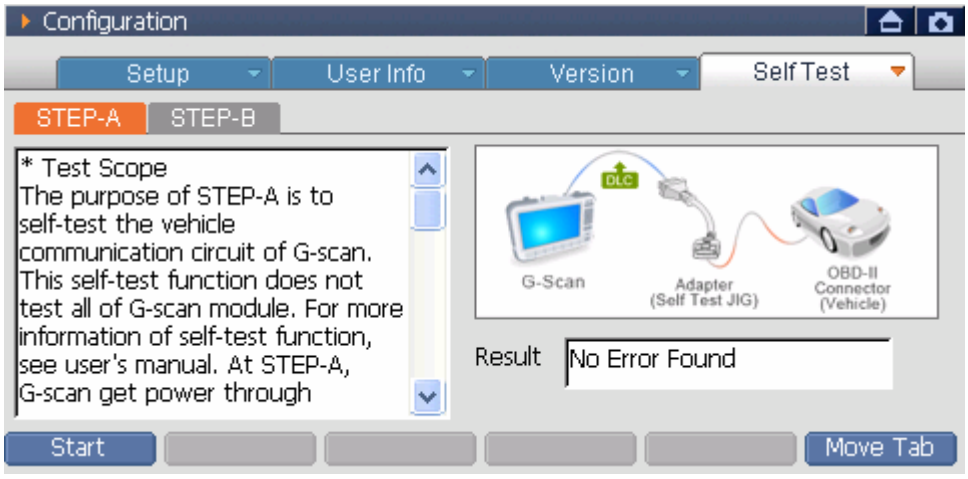
2) Turn on the power of G-scan and move to the 'Self Test' tab of configuration.

3)After selecting the STEP-A, select the START or F1 button to perform the test.



<Figure 4: STEP-A Proceeding >

4)Check the 'Test Result' shown on the test result window.



<Figure 5: STEP-A Result>

No Error Found:

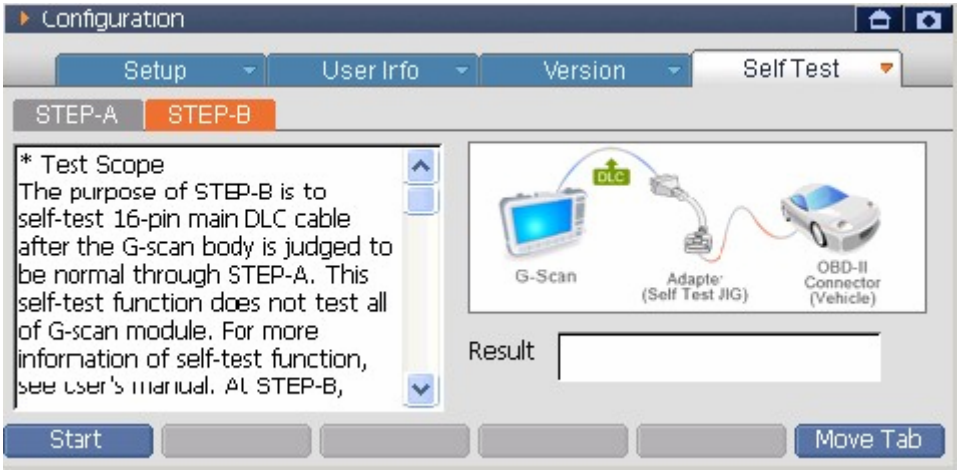
Proceed another test of 16-pin DLC cable; begin the "STEP-B" test.

Error Found :

G-scan main module may be inoperative. Contact the authorized service provider

STEP-B Test

STEP-B test is to check if the DLC main cable is broken or short on the condition that communication module of G-scan is normal. During this test, the power is supplied by DLC cable and Self Test adapter. For the details of Self Test adapter, please refer to the 'Connecting Self Test adapter' in the 'Basic usage of G-scan.'



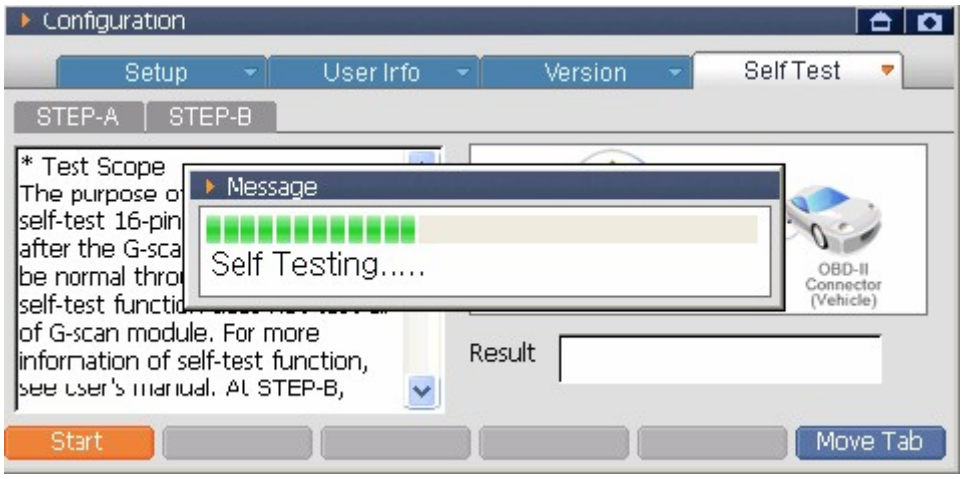
<Figure 6: STEP-B Screen>

How to test.

1) Connect the DLC cable to G-scan and connect the Self Test adapter to the other end of DLC cable. Connect the adapter to the OBD-II connector of the vehicle.

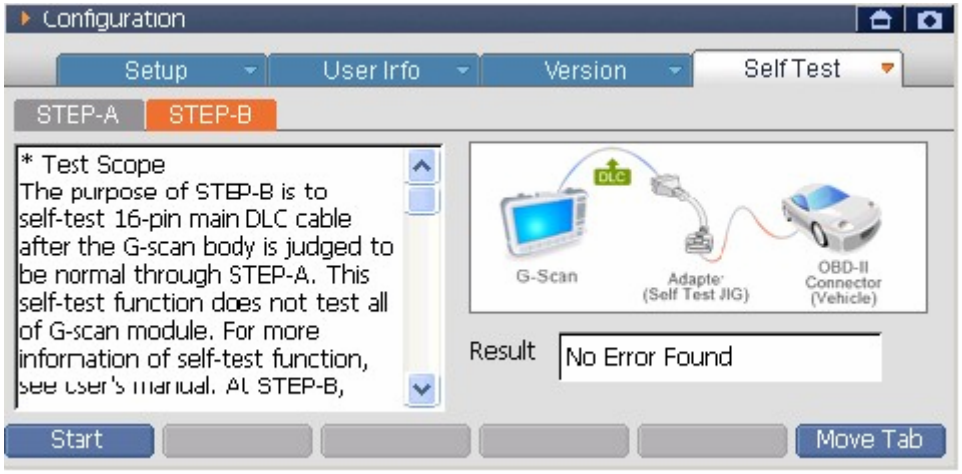
2) Turn on G-scan power and move to the 'Self Test' tab of the configuration.

3) Select STEP-B and then select START or F1 button to perform the test.



<Figure 7: STEP-B Proceeding>

4) Check the 'Test Result' shown on the test result window.



<Figure 8: STEP-B Result>

The test result messages are explained below:

No Error Found:

You may still need to test cable integrity by wiggling to test for intermittent connections.

If the test results indicate "No Error Found" and the vehicle communication continues to fail after the self-test adaptor is removed, verify that the communication problem is not vehicle related; contact the authorized service provider if necessary.

Error Found:

When the test result in self-diagnosis STEP-A is "No Error Found" but the result of STEP-B is "Error Found", then there is a high possibility that the 16-pin Main DLC cable (P/No: G1PDDCA001) is inoperative. Contact the authorized service provider.

Exit from the "Self Test"

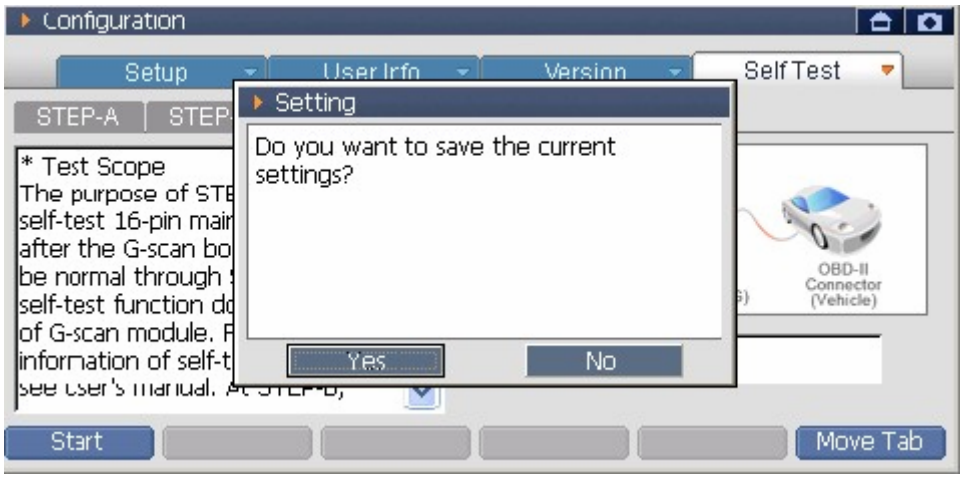
After setup the "Self Test", move to other Tab.

- Select the F6 to move to the "Setup".
- Using stylus pen, select the "Tab" at the upper side of the touch screen to move.

Move to main screen

- Select the ESC to move to main screen.
- Select the on top right side of the touch screen to move to main screen.

Selecting 'Move to main screen', the following message will be shown.



<Figure 9: Save Message>

Yes	Save the setups and move to main screen.
No	Cancel the setups and move to main screen.

Vehicle Communication Function

Vehicle Selection A-04-001
Fault Code Searching A-04-002
DTC Analysis A-04-003
Data Analysis A-04-004
Actuation Test A-04-005
Vehicle S/W Management A-04-006
ECU Upgrade A-04-007
OBD-II Function (CARB OBD-II) A-04-008
Flight Recording A-04-009

Vehicle Selection

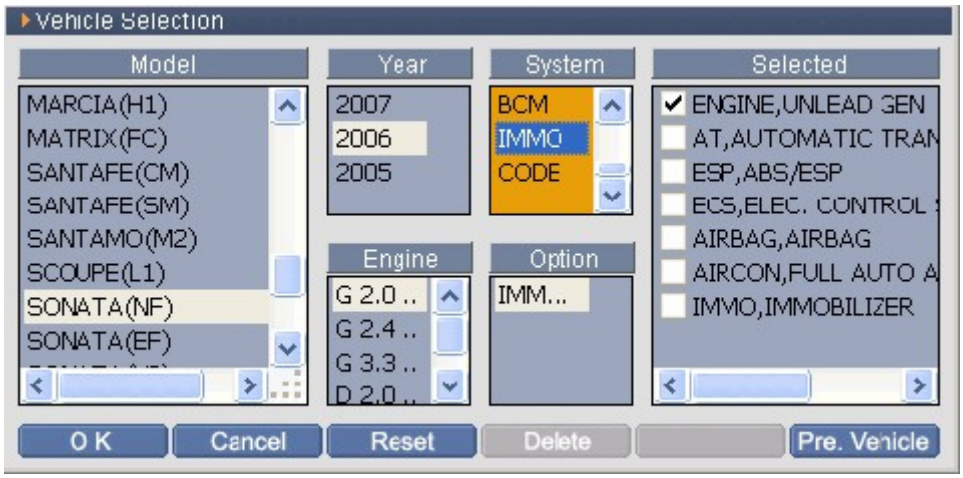
Vehicle Communication Function **Module: A-04-001**

In order to diagnose the vehicle through G-scan vehicle model and system should be selected before the start.

More than one system can be selected and diagnosed at one time.

Introduction of Vehicle Selection Screen

For the convenience of user, it is categorized into the Model, Year, Engine, System and Option. The control modules of vehicle selected by user are shown in the "Selected" zone on the right side.



<Figure 1: Vehicle Selection Screen>

O K	After saving the systems selected by user, move to the main screen or the diagnosis screen selected by user.
Cancel	Cancels the systems currently selected and returns to the main screen.
Reset	Clear all systems currently selected.
Pre. Vehicle	Brings systems previously selected and diagnosed.
Delete	Deletes the system on which the cursor is located in "Selected" zone.

Vehicle Selection using the H/W Button

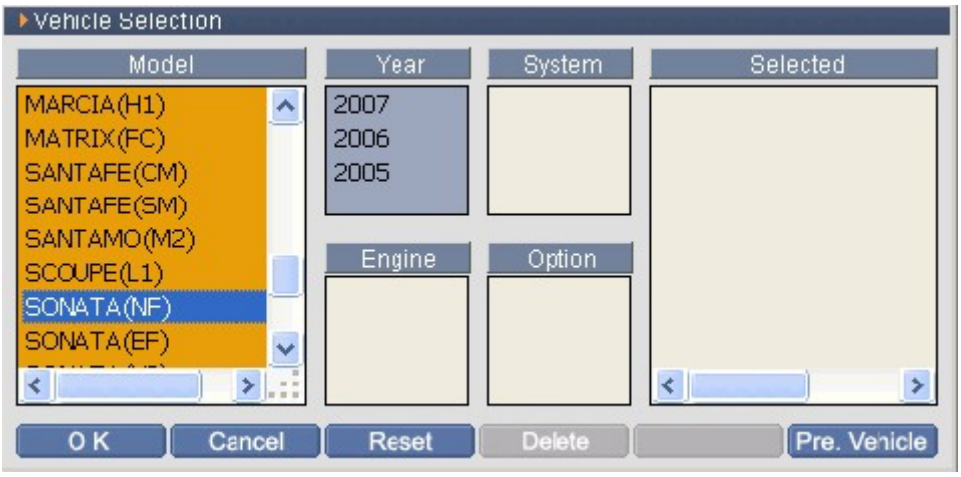
Select the Vehicle Selection on the main screen, then below screen will be displayed.

How to select Vehicle

1) Model Selection

On vehicle selection screen, the cursor will be located at the upper portion of the Model Selecting Zone as follows.

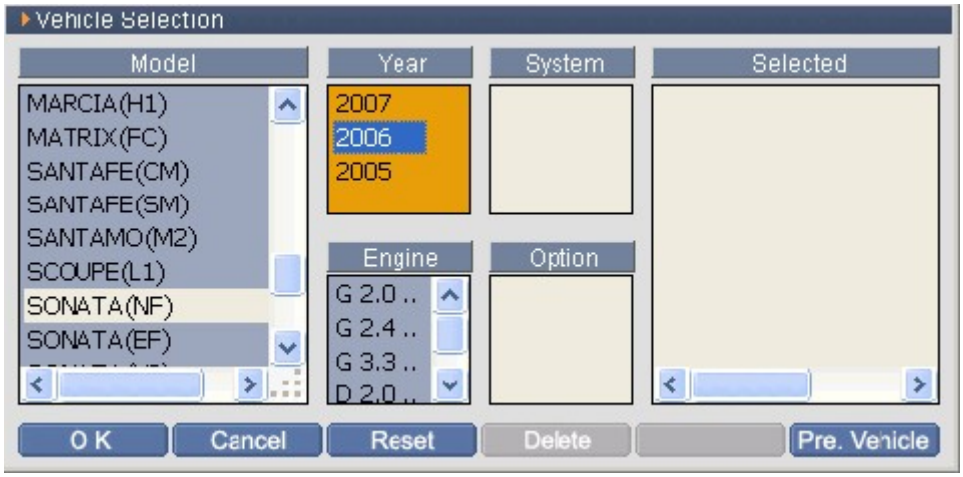
1	▲, ▼	Move and set the cursor on the model.
2	ENTER, ▶	Select the model to be diagnosed. Move to "Year" zone.



<Figure 2: Model Selection Screen>

2) Year Selection

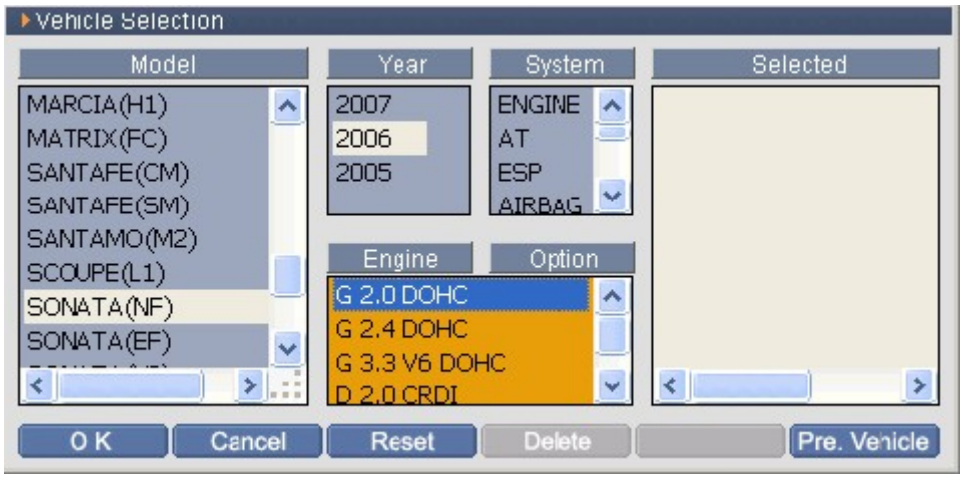
1	▲, ▼	Move and set the cursor on the year of model
2	ENTER, ▶	Select the year of model to be diagnosed. Move to "Engine" zone.



<Figure 3: Year Selection>

3) Engine Selection

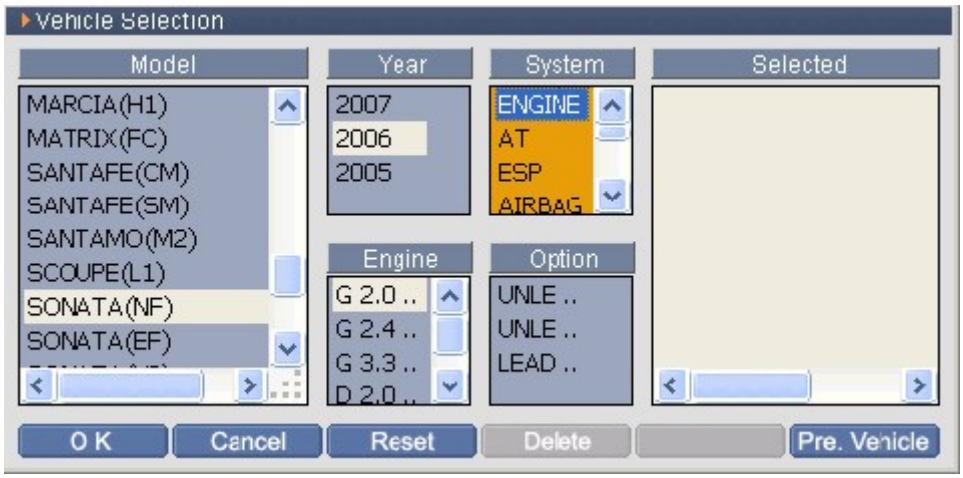
1	▲, ▼	Move and set the cursor on the engine of model
2	ENTER, ▶	Select the engine of model to be diagnosed. Move to "System" zone.



<Figure 4: Engine Selection>

4) System Selection

1	▲, ▼	Move and set the cursor on the system of model
2	ENTER, ▶	After selecting the system of model to be diagnosed
		①When there is one system option: The system is registered in the "Selected" zone.
		②When there are two or more system options: Move to the "Option" zone.



<Figure 5: System Selection>

5) Option Selection

1	▲, ▼	Move and set the cursor on the system option of model
2	ENTER, ▶	Selected option type is registered in "Selected" zone

<Figure 6: Option Selection>

6) Multiple System Selection

When the number of the Systems to be diagnosed is more than one, press ESC or ◀ buttons to move to "system" and select other systems.

→ Repeat 4)~6) for multiple system selection.

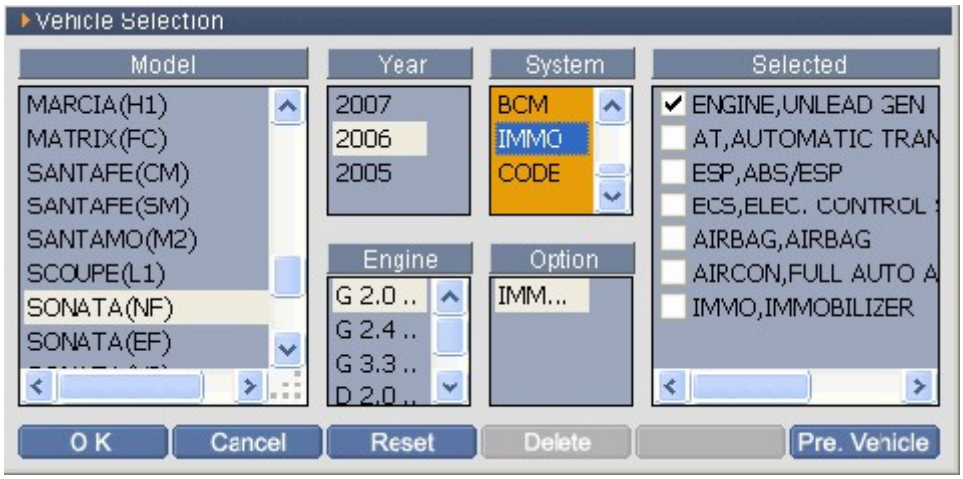
Notice:
During selecting system, when it moves to upper zone than "System" zone ("Model", "Year", "Engine" zones), all previously selected systems will be cleared.

7) Main Diagnosis System Selection

Using ▲ ▼ buttons in the "Selected" zone, locate the cursor on the wanted system and press ENTER button. Then the ☑ mark will be shown in front of the system name as following figure.

Main Diagnosis System:

Multiple system communications are supported in "Fault Code Searching" function only, Only one selected system (☑ marked) will be communicated on other diagnosis functions.(eg: DTC Analysis, Data Analysis, Flight Record and etc.)



<Figure 7: Main Diagnosis System Selection>

8) Completion of vehicle selection

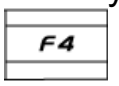
After selecting all systems to be diagnosed, select O K or F1 button to complete the vehicle selection.

9) Delete the selected system

For deleting the system registered in the "Selected" zone, select the system to be deleted in the "Selected" zone and then select Delete or F4 button to be deleted.

System Selection using touch screen

- The vehicle selection process and its caution for using the touch screen are the same for using the H/W button described.
- When the wanted items are not shown in each zone, move the scroll bar up and down to find the items.
- To delete the registered system in the "Selected" zone, select the system in the "Selected" zone again and then select

or 

button.

Note:
The information of latest vehicle selection is always memorized although power is off. Select

button and then previous selection will be available.

DTC search for multi systems is supported only in

function. Otherwise only selected one system will be searched.(in DTC Analysis)

Multiple System Selection

Through

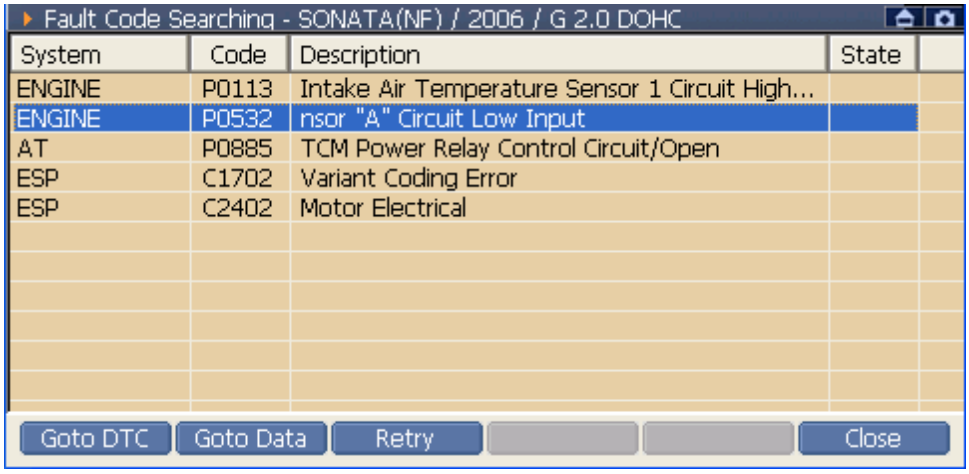
more than one system can be diagnosed. Select all control modules which may have problems in the vehicle. However, multiple systems selection is not supported for the vehicle with some specific communication protocol type.

Fault Code Searching

Vehicle Communication Function **Module: A-04-002**

In this screen, you can check DTCs of all selected systems at one time and directly move to DTC analysis or DATA analysis screen.

Introduction for Fault Code Searching Screen



<Figure 1: Fault Code Searching Screen>

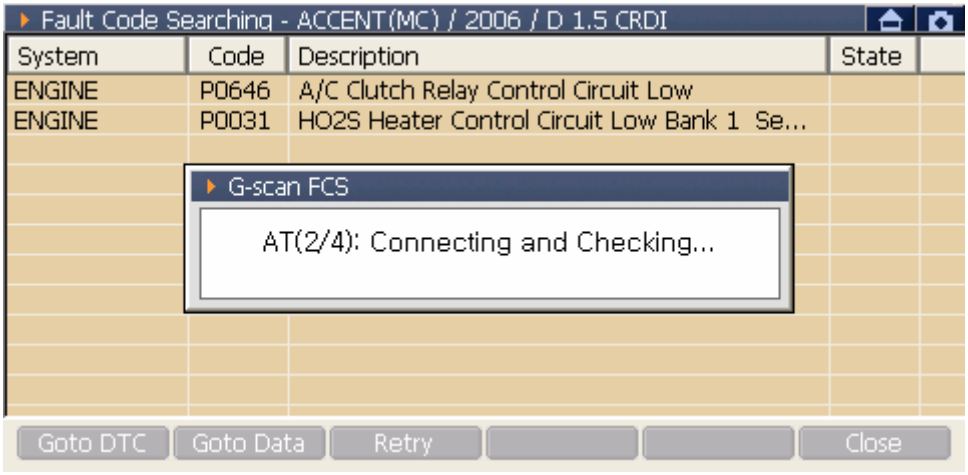
Goto DTC	Moves to DTC analysis of selected system.
Goto Data	Moves to DATA analysis of selected system.
Retry	Searches the fault code of the selected system again.
Close	Closes the current window and moves to the main screen.

Operating Sequence and Reference

Processing of fault Code Searching

Select

in the main screen after completing system selection, and it will show fault codes of selected systems as below.

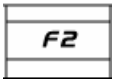


<Figure 2: processing of fault Code Searching>

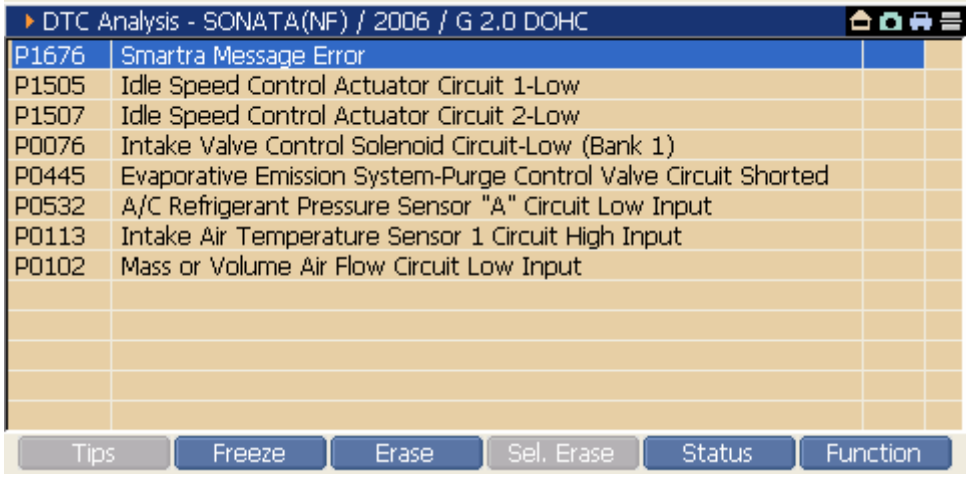
Move to DTC Analysis or Data Analysis

1) Using the stylus pen or buttons, select the detected DTC.

2) Select the diagnosis mode.

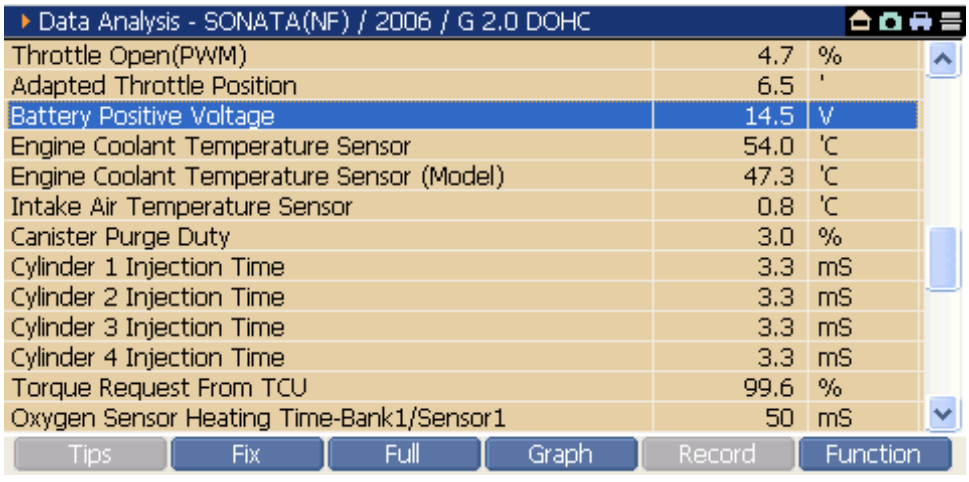
or	Move to DTC Analysis of selected system
or 	Move to Data Analysis of selected system

- When Goto DTC is selected, you can erase DTC or check the data of related DTC.



<Figure 3: When 'GOTO DTC' is selected>

- When Goto Data is selected, you can check the current data of related control module.



<Figure 4: When 'GOTO DATA' is selected>

DTC Analysis

Vehicle Communication Function **Module: A-04-003**

In DTC Analysis, it shows detected DTC and provides related information. After item repaired related DTC can be erased in this function.

There are 3 methods to move to DTC Analysis.

- On the main screen, select the

.
  → Move to DTC Analysis of main diagnosis system (☑ marked in "Selected" zone).

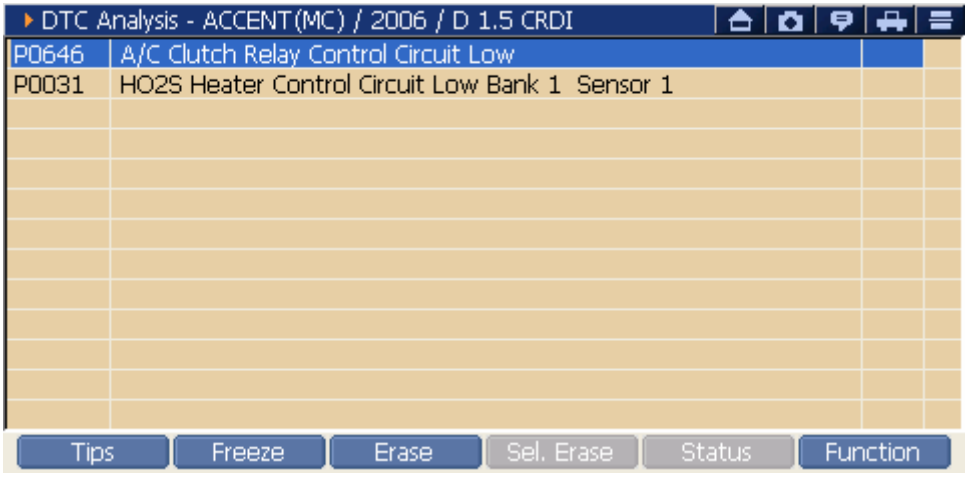
- On "Fault Code Searching" screen, select the

.
  → Move to the DTC Analysis of selected DTC.

- Select the DTC among the menu of

button on "Data Analysis" screen.
  → Dual mode is supported that DTC Analysis and Data Analysis can be shown on the display at one time.

Introduction of DTC Analysis screen



<Figure 1: DTC Analysis Screen>

Tips	General Description for fault code
Freeze	Freeze Frame function, shows the current data of the control module at the time of DTC Detected * Availability of this function is subject to control module.
Erase	Erase all fault codes saved in the control module
Sel. Erase	Erase the fault code selectively among the fault codes. *Availability of this function is subject to control module
Status	Shows detailed information for DTC. * Availability of this function is subject to control module
Function	Dual mode and other supplementary function available.

Note:

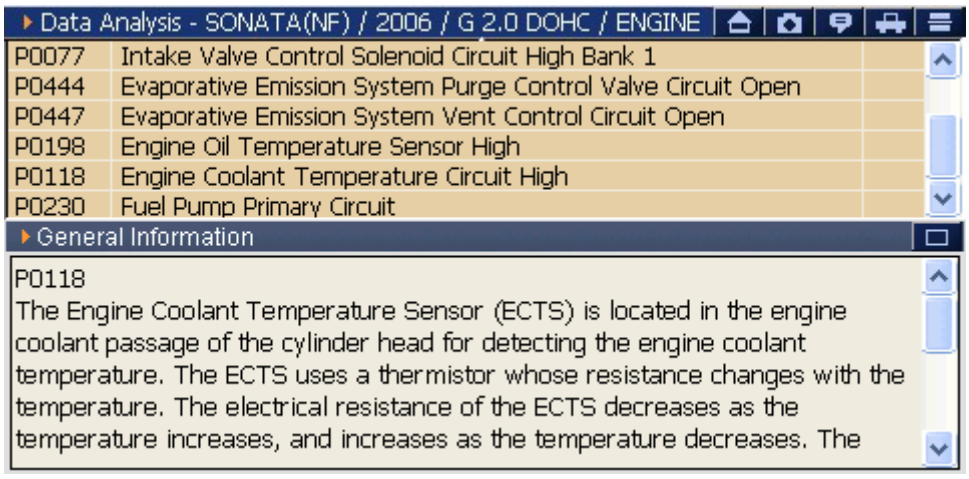
- When fault code is many and all are not shown in one screen, move the scroll bar at right side using the stylus pen or ▼ ▲ buttons to find.
- If you want to move back to main screen, press the ESC button or on top right side.

Diagnosis Sequence for DTC and References

Check Tips

1)Select the DTC for detailed description.

2)Select Tips or F1 button, and you will see description window.



<Figure 2: Tips>

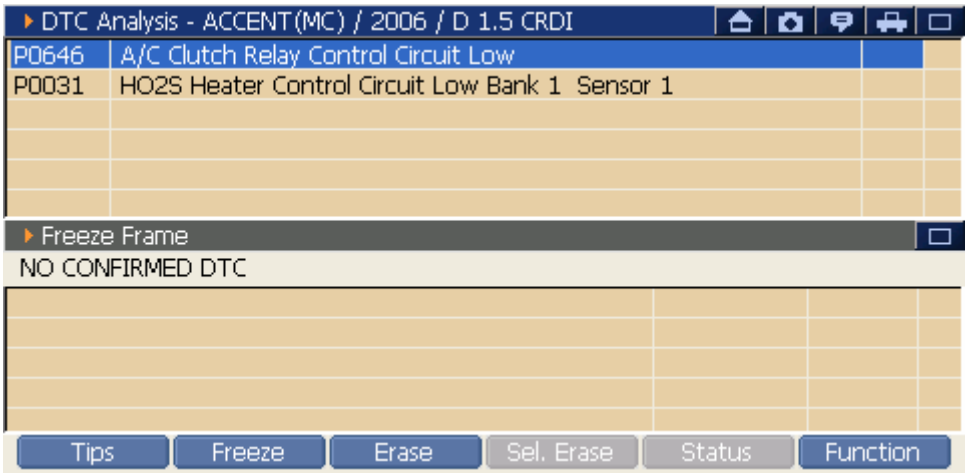
3)If you want to close the 'General Description', select Tips, F1 button again or ESC button.

Check Freeze Frame

1)Select the DTC for the Freeze Frame you want to see.

Freeze Frame:
Specific Current data of control module at the time of DTC detected.

2)Select Freeze or F2 button on DTC Analysis screen, you can check Freeze Frame.



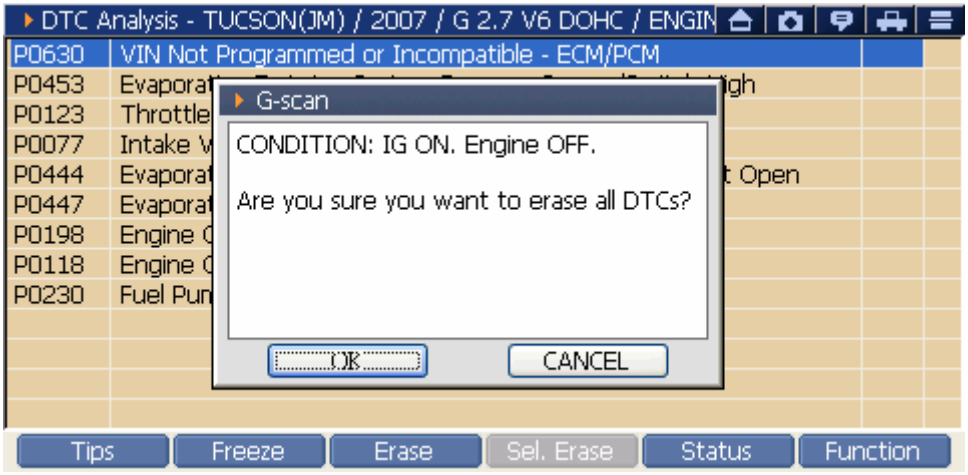
<Figure 3: See the Freeze Frame>

3)If you want to close the Freeze Frame screen, select the ☐ of "DTC Analysis" on top right side of screen <Figure 3>.

Notice:
Availability of this function is subject to control module.

Erase DTC

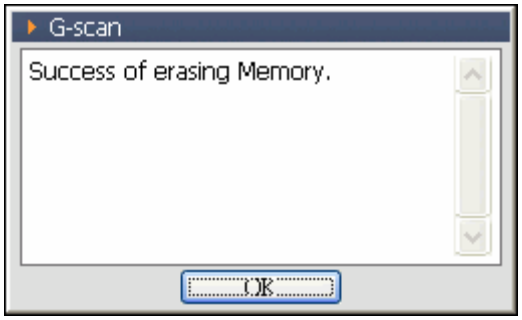
1) Select Erase or F3 button on DTC Analysis screen.



<Figure 4: Erase DTC>

2) As shown in <Figure 4>, pop-up window to ask your confirmation is displayed.

- When OK is selected:
  → All DTCs are erased and the message will be shown.



<Figure 5: DTC erased message>

- When CANCEL is selected:
  → The erase of DTC will be canceled.

Selective erase of DTC

1) Select the DTC to be erased on DTC Analysis Screen.

2) Select the Sel. Erase or F4 button.

3) The message for confirming erasion is displayed.

- When OK is selected:

  DTC selected in step 1) is erased and message is displayed.

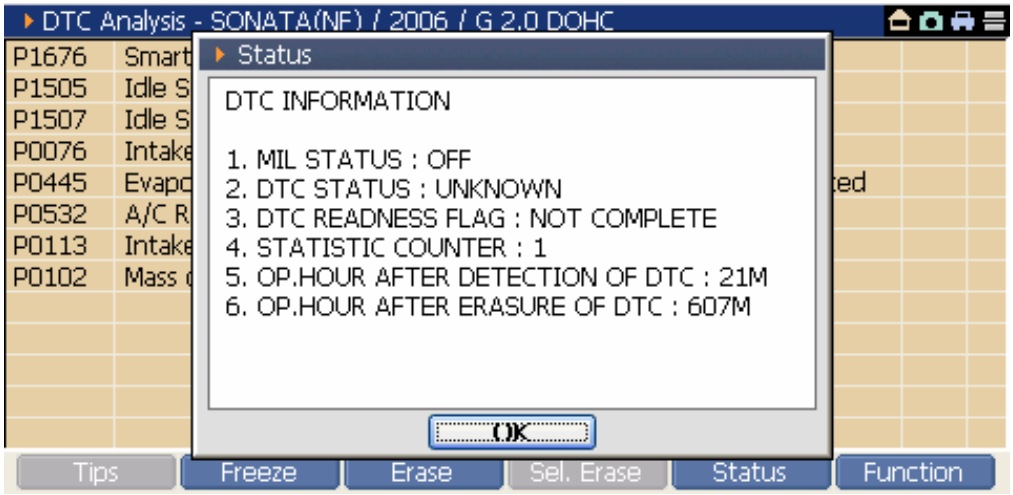
- When Cancel is selected:

  DTC erase is cancelled.

Check Detailed Information of DTC

1) Select DTC on DTC Analysis.

2) Select Status or F5 button.



<Figure 6: DTC information>

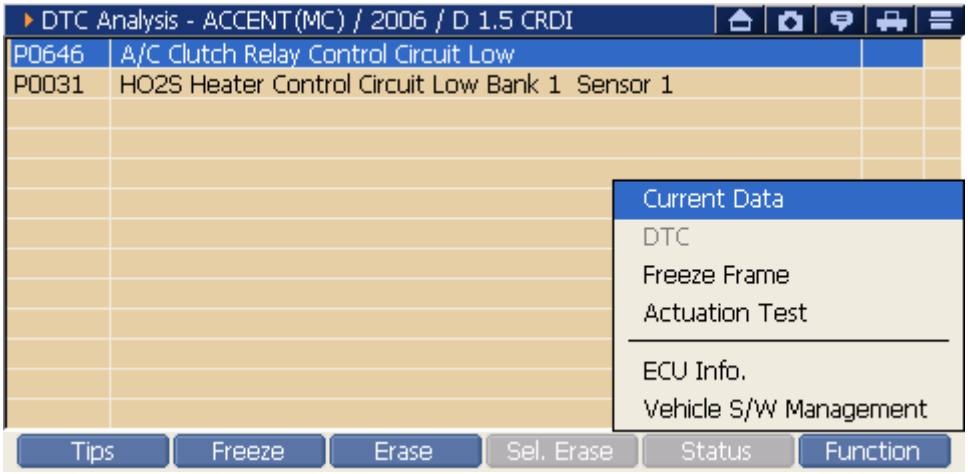
3) As shown in <Figure 6>, DTC information window is shown.

Notice:
Availability of this function is subject to control module.

DTC Analysis with Dual Diagnosis Mode

- **Check DTC Analysis and Data Analysis at the same time**

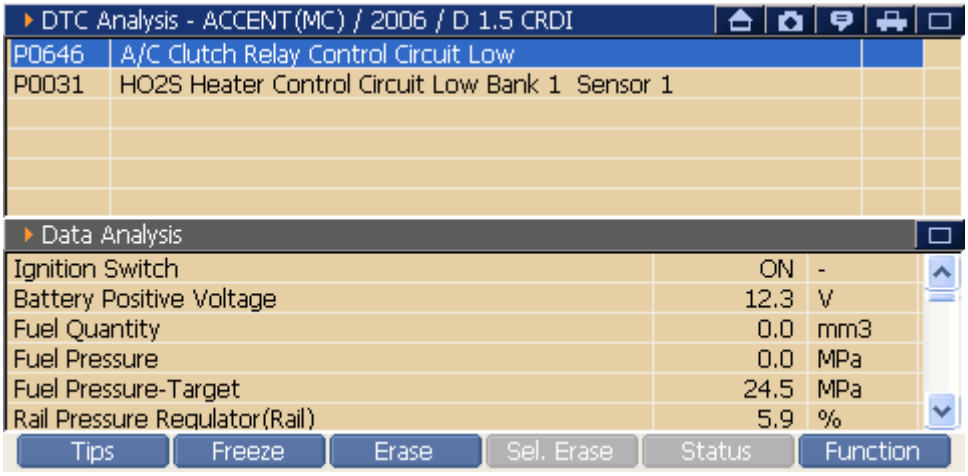
1)On the DTC Analysis screen <Figure 1>, select Function or F6 button, and then Function Menu is shown as in <Figure 7>.



<Figure 7: DTC Analysis "Function Menu">

2)On the "Function" menu, select the Current Data, and it changes to the Dual mode as shown in <Figure 8>.

- Using stylus pen, select it on the touch screen directly.
- After moving cursor using ▲ ▼ buttons, press ENTER button.



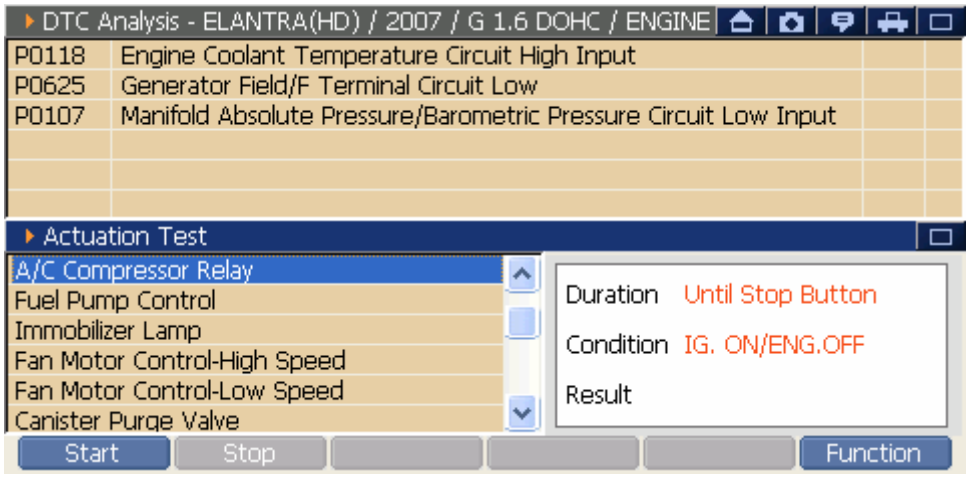
<Figure 8: Dual Diagnosis Mode of DTC Analysis & Data Analysis >

● **Check DTC Analysis and Actuation Test at the same time**

1) On DTC Analysis screen, select Function or F6 button, and then Function Menu will be shown as in <Figure 7>.

2) Select the "Actuation Test" on function menu, then it changes to Dual diagnosis mode as shown in <Figure 9>.

- Select it using stylus pen on the touch screen.
- After moving the cursor using ▲ ▼ buttons, press ENTER button.



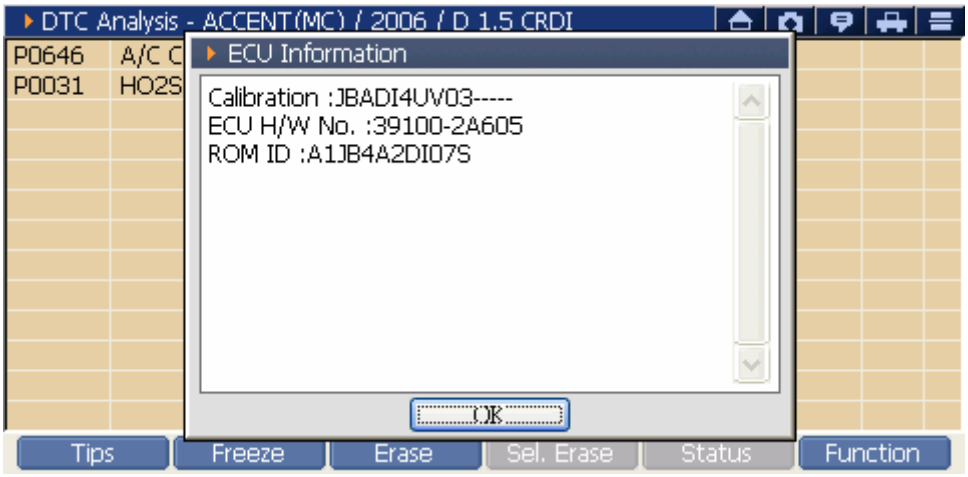
<Figure 9: DTC Analysis & Actuation Test on Dual Diagnosis Mode>

● Check the ECU Information

1) On DTC Analysis screen, select Function or F6 button, then the Function Menu is shown as in <Figure 7>.

Select the "ECU Info" and then ECU Information is displayed as shown in <Figure 10>.

- Using the stylus pen, select it on the touch screen directly.
- After moving cursor using ▲ ▼ buttons, press ENTER button.



<Figure 10: ECU Information>

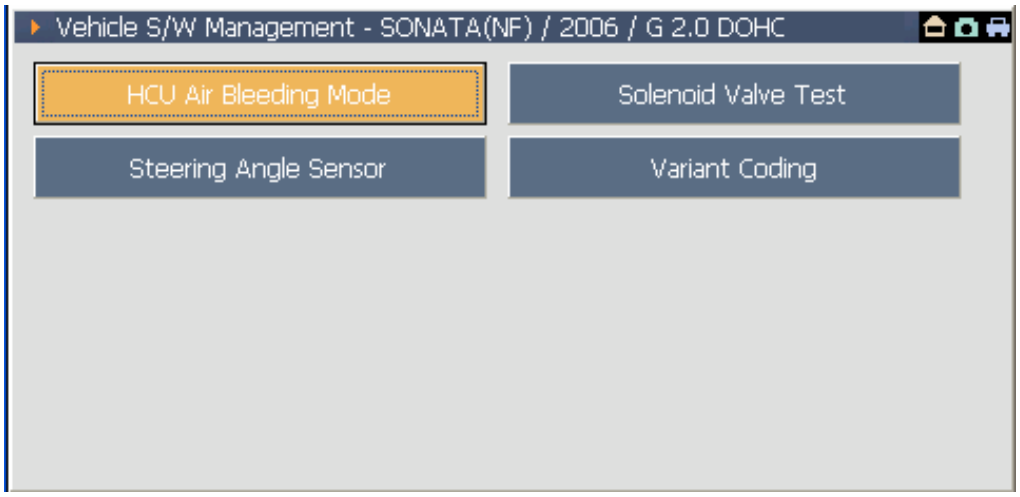
2) Press OK button to close the "ECU Information" pop-up window.

● Change to the Vehicle S/W Management

1) On DTC Analysis screen, select the Function or F6 button, then the Function Menu is shown as <Figure 7>.

2) Select the "Vehicle S/W Management" in the function menu, and then the screen changes to the Vehicle S/W Management as <Figure 11>.

- Using the stylus pen, select it on the touch screen directly.
- After moving cursor using ▲ ▼ buttons, press ENTER button.



<Figure 11: Vehicle S/W Management>

Data Analysis

Vehicle Communication Function **Module: A-04-004**

To check current data of control module, and you can move to data analysis in 3 different ways.

- Select the

on the main screen.
  → Move to Data Analysis of main diagnosis system (☑ marked in "Selected" zone).

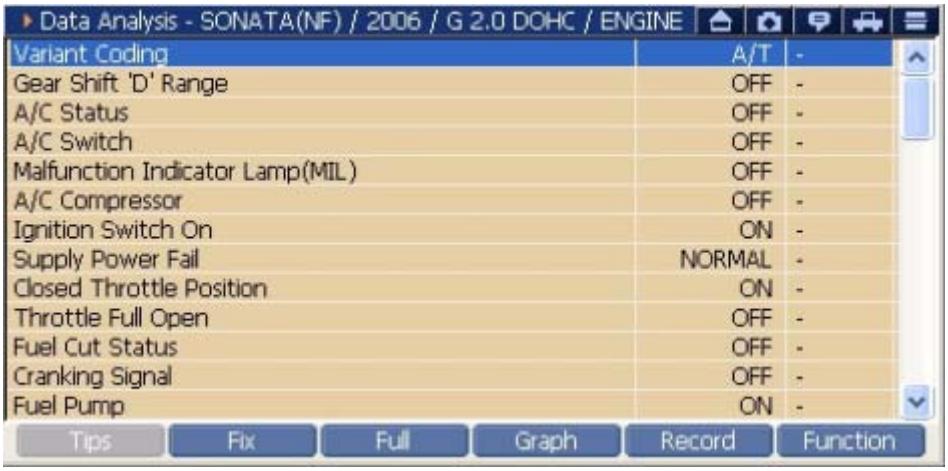
- Select the

at the "Fault Code Searching"
  → Move to the Data Analysis of selected DTC.

- On DTC analysis, select

and select current data among the menu.
  → The "DTC Analysis" and "Data Analysis" of the control module communicated in the "DTC Analysis" are shown on dual mode at one time.

Introduction of Data Analysis



<Figure 1: Data Analysis Screen>

Fix	Fixes the selected item at the top of the screen.
Full	Splits the current data screen into left and right sides and shows maximum 26 data.
Graph	Shows the current data in graph mode.
Record	Starts recording the selected items.
Function	Dual mode and other functions available.

Note:

- If the wanted data is not on display, move the scroll bar with the stylus pen or use ▼, ▲ buttons to find it.
- If you want to return to initial screen, select the on top right of the screen or esc button.

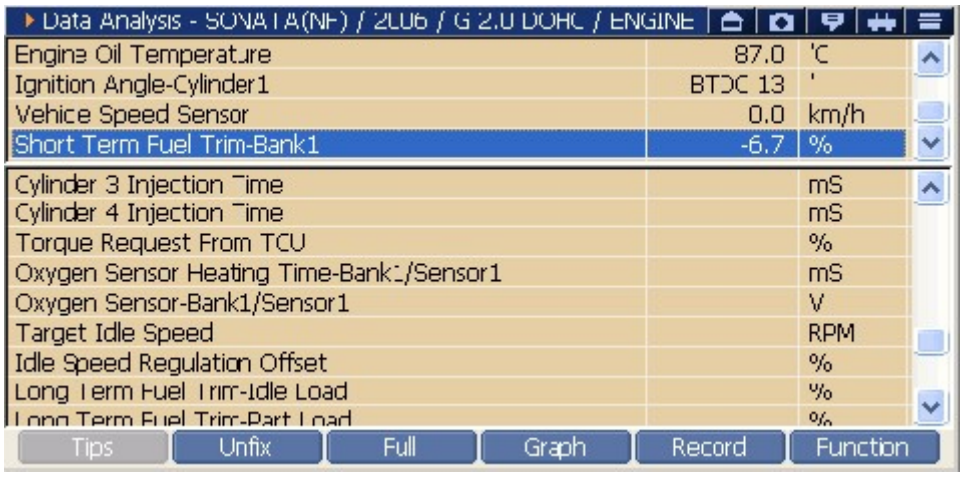
Operating Sequence and References

Fix the Data Items

- How to fix the items

1)Select a item to fix.

2)Select FIX at the bottom of the screen, F2 button, or double click the item using the stylus pen on the touch screen, then the selected item will be fixed at the top of the screen as shown in <Figure 2>.



<Figure 2: Fix the Data Item>

- How to release the fixed item

1)Select the fixed item again.

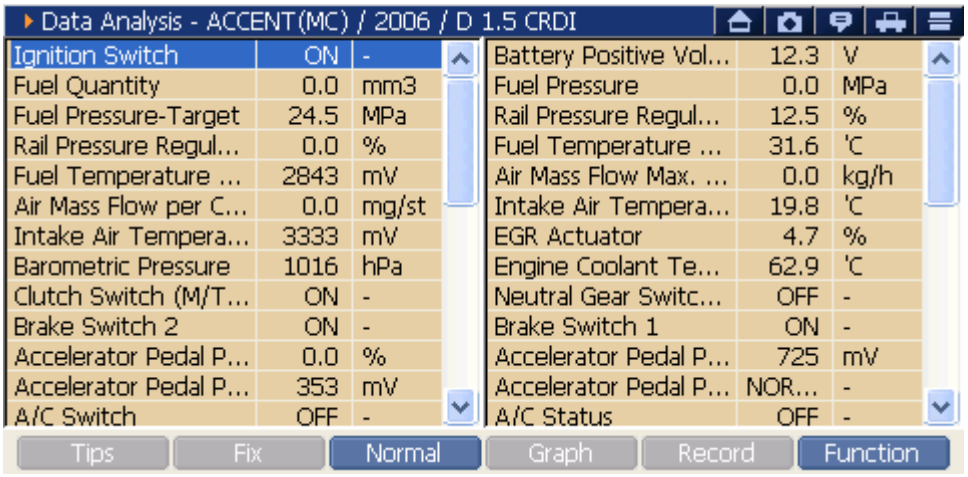
2)Select Unfix at the bottom of the screen, F2 button or double click the item to be released using the stylus pen on the touch screen.

Note:

The speed of updating current data is dependent upon the number of fixed(selected) items.

Full

- Display maximum item number of current data on screen. On the Data Analysis screen, select Full or F3 button, then the screen will be divided as shown in <Figure 3> and maximum 26 data items are shown.



<Figure 3: See in Full>

- Return to Normal screen.
  On Full screen mode, press Normal or F3 button.

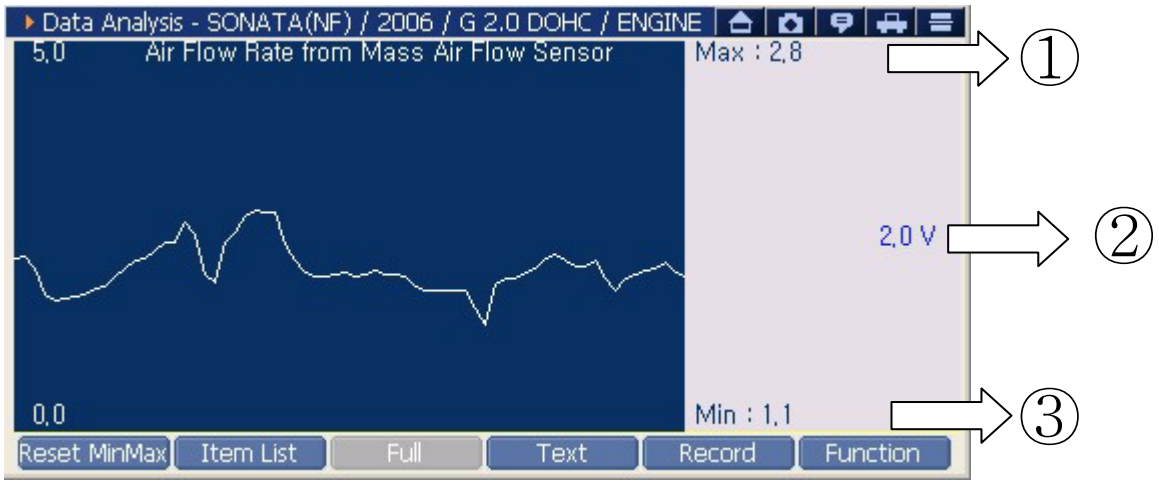
Note:

- On the screen in Full mode, FIX and graph functions are not available.
- Find wanted data moving the scroll bar with the stylus pen or use the control navigation.
- If full name of data item is not shown, select the item using the stylus pen, then full name can be shown by moving to left side.

Graph

1)Select the item to fix in text mode.

2)Select Graph or F4 button, then the selected item will be shown in graph mode as in <Figure 4>.

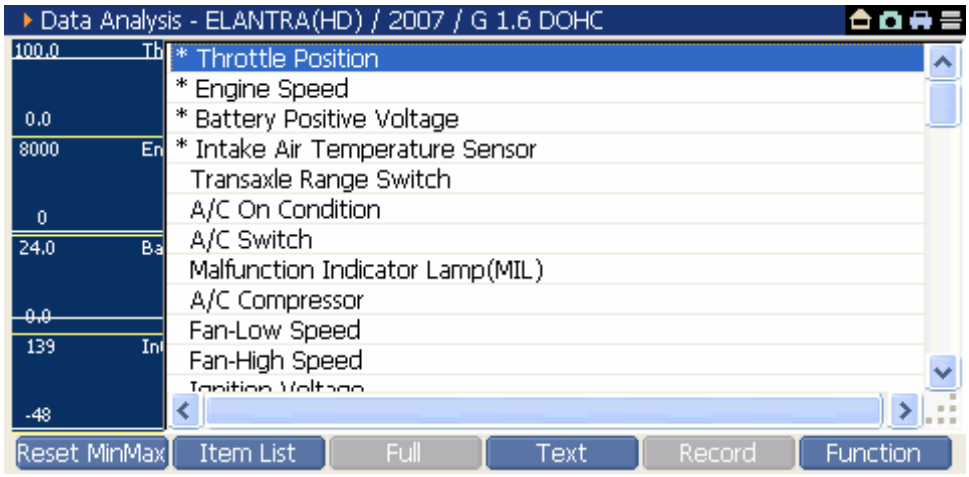


<Figure 4: Graph mode>

①	**Max**	Maximum value of selected item's output
②	**Current**	Current value of selected item's output
③	**Min**	Minimum value of selected item's output

Reset MinMax	Initialize the Max and Min values output in graph.
Item List	Change displayed item in graph mode.

● Add/Delete the graph list using Item List.



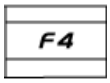
<Figure 5: Item List>

① In graph mode, select Item List, then Item List is shown as in <Figure 5>.

(The item having "*" mark among the List is currently displayed in graph mode.)

② Select the item to be deleted among the list in graph mode using ▲, ▼ and ENTER buttons or using the stylus pen on the touch screen.

③ Select the item to be displayed in graph mode among the list using ▲, ▼ and ENTER buttons or using the stylus pen on the touch screen.

④ If you want to check current data in text mode, press the 

button or

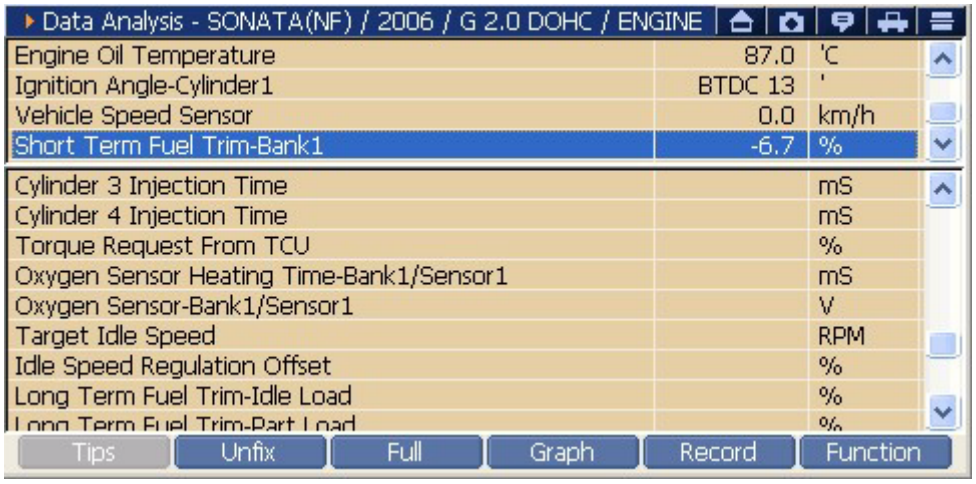
.

Note:

The number of current data to be displayed in graph mode is 4 at most on single mode, and 2 on dual mode.

Record

1) Users should fix the data before recording.
Please refer to "Fix" function in the Data Analysis chapter.

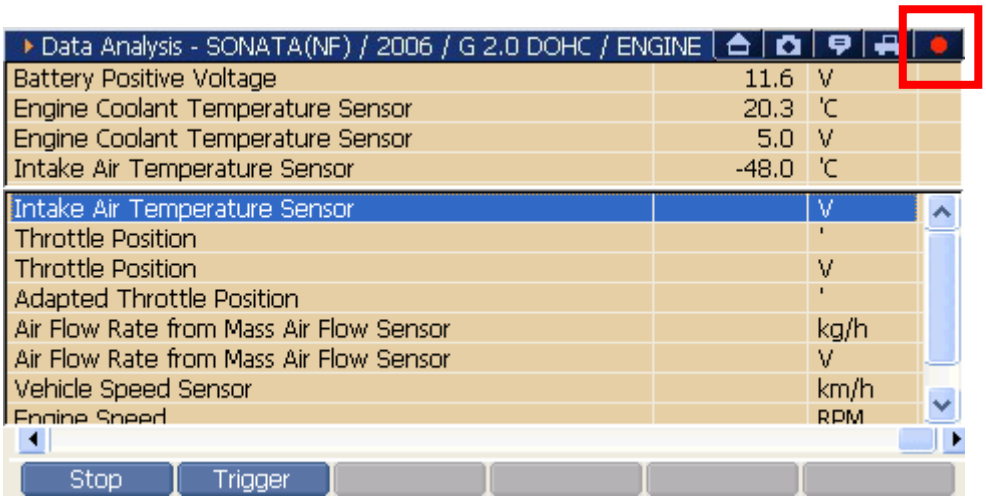


<Figure 6: Fixing record items before record>

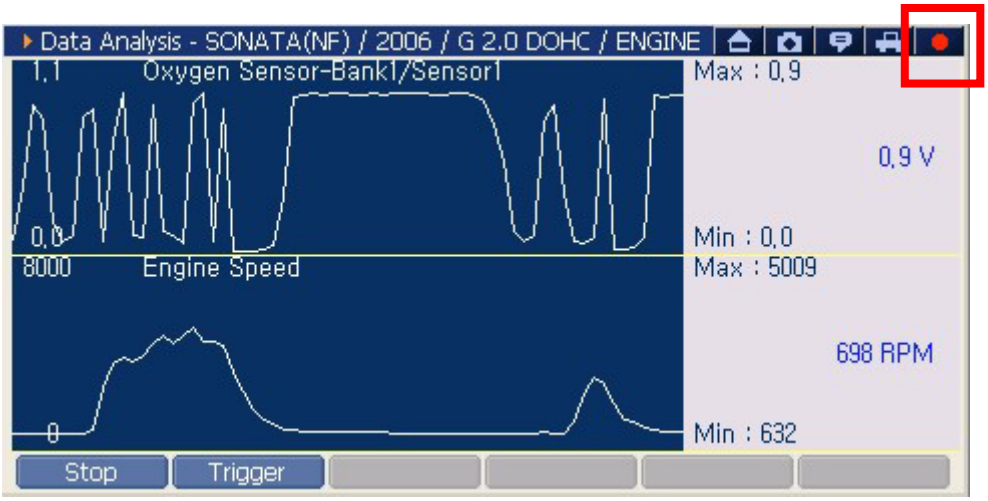
2) Select F5 button or Record.

<Figure 7: Select record mode>

Select Record mode and click OK button as in <Figure 7>. Then it will start recording data as in <Figure 8-1> or <Figure 8-2> and recording status lamp on top right of the screen will be flickering.



<Figure 8-1: Recording in text mode>



<Figure 8-2: Recording in graph mode>

Stop	Finishes recording data
Trigger	Marks the moment of triggering during recording the data.
	Recording check lamp. During recording data, it turns on in red. (Normal: black, Record: red)

Notice:

Please refer to <A-04-009> for data record and how to use buttons.

Note:

Record screen can be switched to graph mode by select Record or F4 buttons in <Figure 6>.

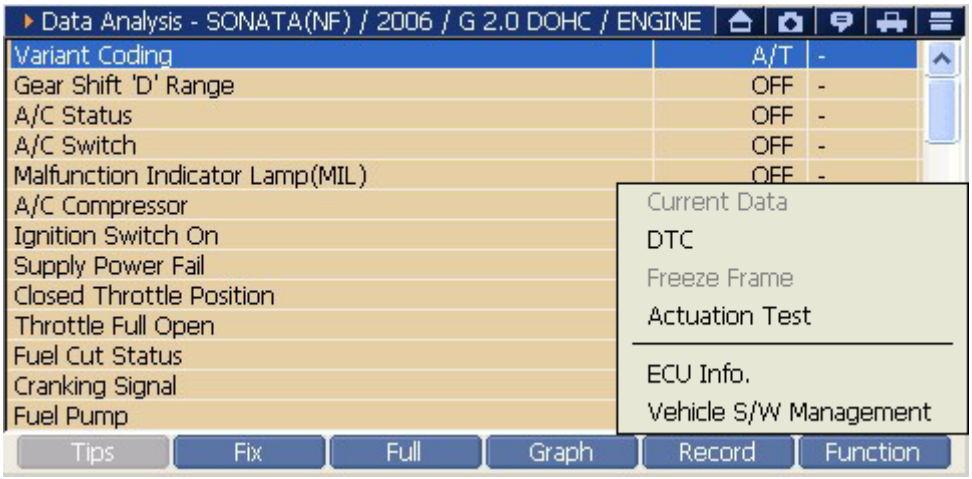
Note:

Recording function screen will be changed to full size screen and start recording when Record or F5 button is selected on dual diagnosis mode.

Data Analysis on Dual Diagnosis Mode

● Check the Data Analysis and the DTC Analysis at one

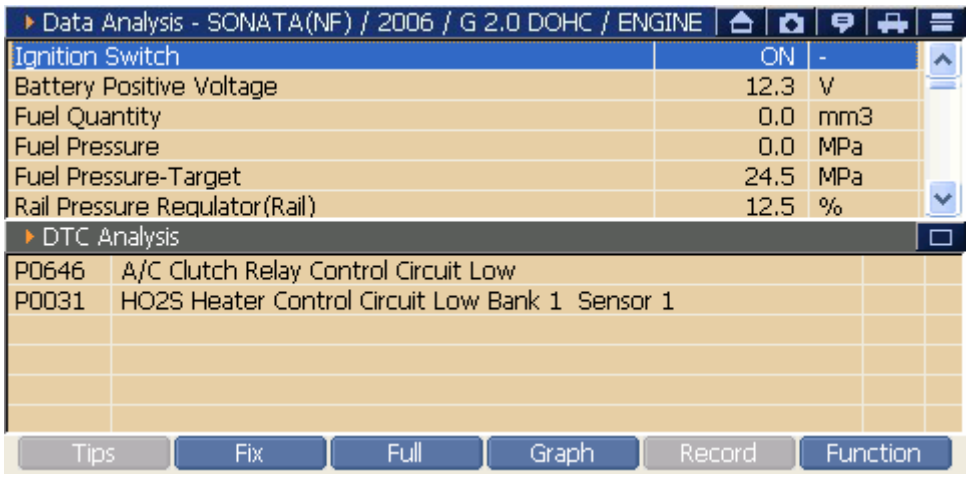
1) On Data Analysis screen select Function or F6 button, and then the Function Menu will be shown as in <Figure 9>.



<Figure 9: Function menu in Data Analysis>

2) On the function menu, select the "DTC" to change the screen to the Dual mode as shown in <Figure 10>.

- Using the stylus pen, select it directly on the touch screen.
- Moving the cursor using ▲, ▼ and press the ENTER button.



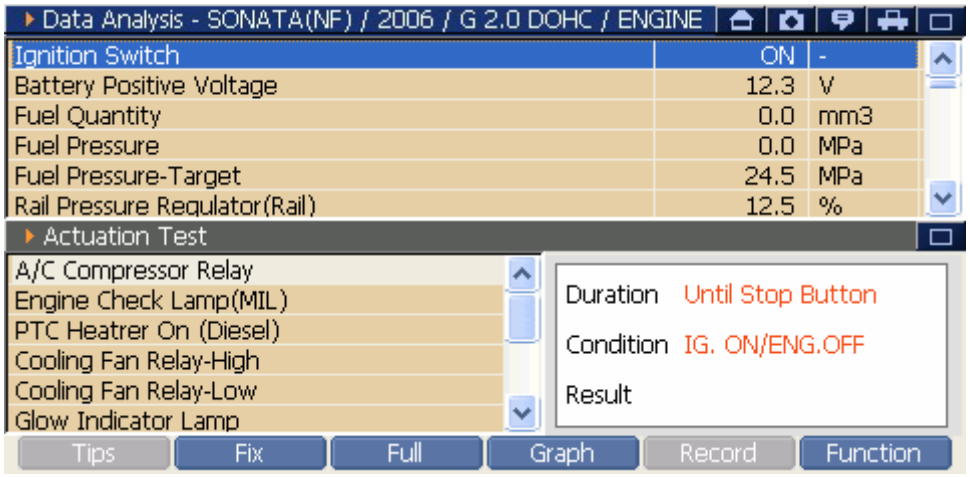
<Figure 10: Data Analysis & DTC Analysis on Dual Diagnosis Mode>

● Check Data Analysis and the Actuation Test at one time

1) On Data Analysis screen, select Function or F6 button, and then the Function Menu will be shown as in <Figure 9>.

2) On the function menu, select "Actuation Test", and screen will be changed to Dual mode as shown in <Figure 11>.

- Using the stylus pen, select it on the touch screen directly.
- Moving the cursor using ▲, ▼ and press ENTER button.



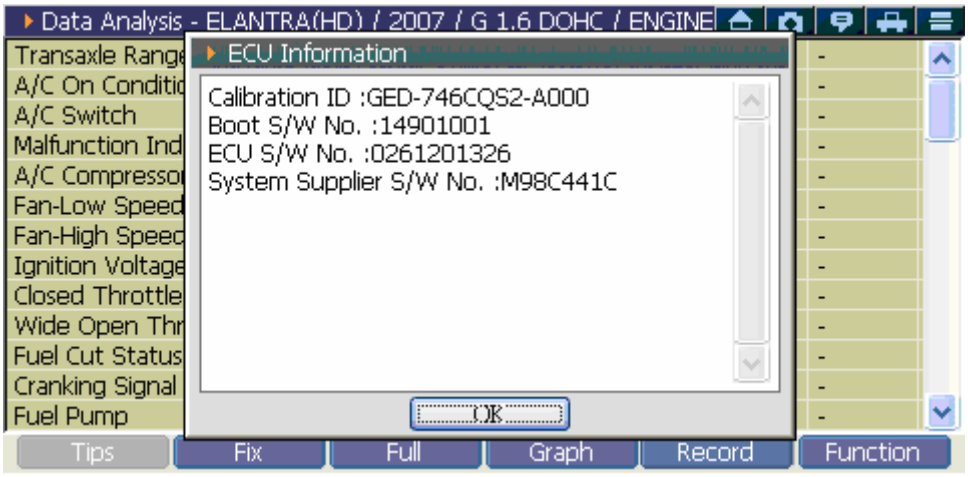
<Figure 11: Data Analysis & Actuation Test on Dual Diagnosis Mode>

● Check the ECU Information

1) On Data Analysis screen, select Function or F6 button, and then Function Menu will be shown as in <Figure 9>.

2) On the function menu, select the "ECU Info", then the ECU Information popup window as in <Figure 12> is shown.

- Using the stylus pen, select it on the touch screen directly.
- Moving the cursor using ▲, ▼ and press the ENTER button.



<Figure 12: ECU Information>

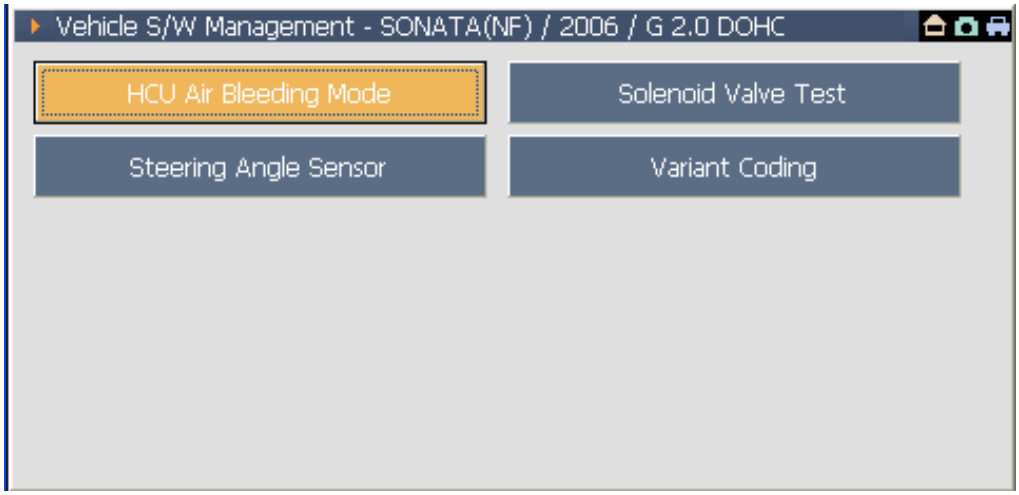
3) Press OK button at the bottom of the "ECU Information" to close the window.

● Change to Vehicle S/W Management

1) On Data Analysis screen, select Function or F6 button and then Function Menu will be shown as in <Figure 9>.

2) On function menu, select the "Vehicle S/W Management", then screen will be changed to Vehicle S/W Management as in <Figure 13> is shown.

- Using the stylus pen, select it on the touch screen directly.
- Moving the cursor using ▲, ▼ and press the ENTER button.



<Figure 13: Vehicle S/W Management>

Actuation Test

Vehicle Communication Function **Module: A-04-005**

Through the "Actuation Test", you can check whether control module or component is defected or not.

There are two methods of using "Actuation Test".

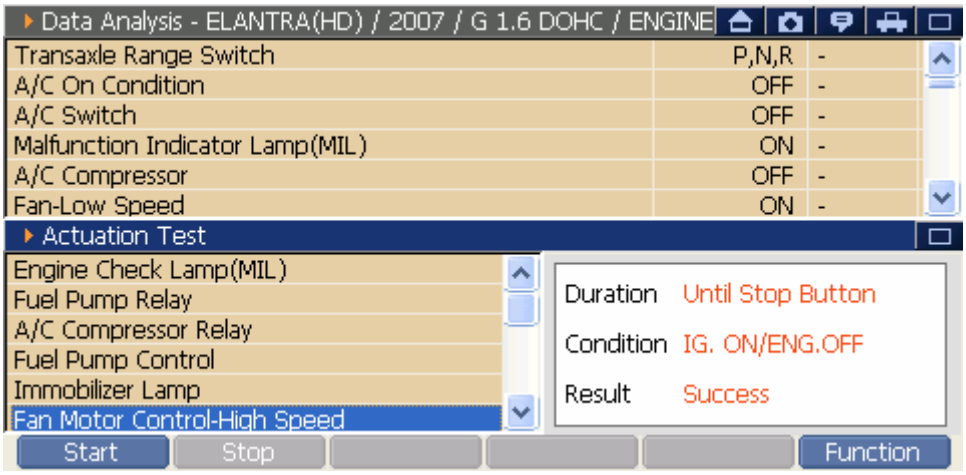
- At "DTC Analysis", select the "Actuation Test" on function menu.

→ "DTC Analysis" and "Actuation Test" will be displayed on dual mode.

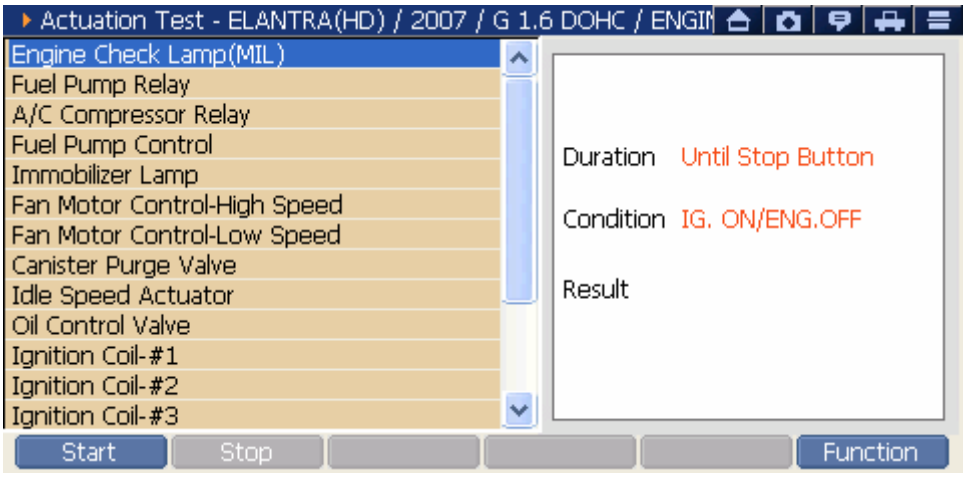
- At "Data Analysis", select "Actuation Test" on function menu.

→ "Data Analysis" and "Actuation Test" will be displayed on dual mode.

Description of Actuation Test screen



<Figure 1: Actuation Test & Data Analysis on dual mode>



<Figure 2: Actuation Test overall screen>

Change to the "Actuation Test" on full screen:

Select on top right of the screen<Figure 1>, and it will be changed to full screen mode as in <Figure 2>.

Change to Dual Mode from full screen:

Select on top of <Figure 2>, then the screen will be changed to dual screen mode as in <Figure 1>.

Left Zone of "Actuation Test" Screen:

You can check the list for actuation test. Move the scroll bar by using the stylus pen or button to select.

Right Zone of "Actuation Test" Screen:

You can check the Duration, Test Condition and Test Result.

Bottom zone of "Actuation Test" screen

	Starts the test for the selected item.
	Finishes the test for selected item.
	Changes to the Current Data, DTC, ECU Info, or Vehicle S/W management.

How to execute the Actuation Test

1) Select the Actuator for Actuation Test

At the left zone of "Actuation Test" screen, select a item directly using stylus pen on the touch screen or move the cursor using , buttons.

2) Check Actuation Test condition and set vehicle

After checking the "Duration" and "Condition" at the right zone of "Actuation Test" screen, set the vehicle accordingly.

3) Start Actuation Test

Select

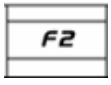
or

button to start the test.

4) Check the Actuation Test result

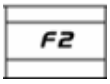
Test result (Failure or Success) will be show at the right zone of the "Actuation Test" screen.

5) Stop the Actuation Test

When duration is fixed	Test will be finished when duration is over automatically.
When duration is not fixted	After checking the result, select or  to finish the test.

Note:

Test could be finished when

or 

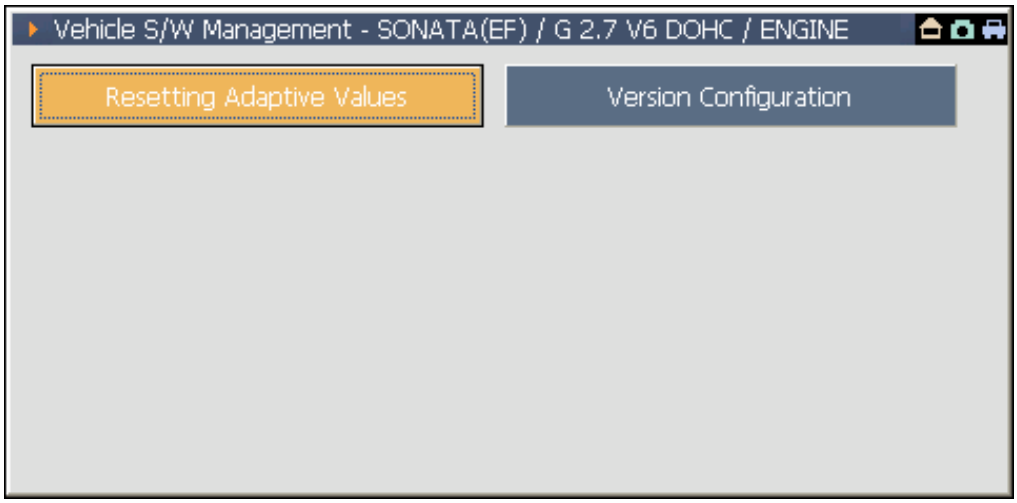
selected, although duration is fixed

Vehicle S/W Management

Vehicle Communication Function **Module: A-04-006**

It contains all supplementary functions except the DTC Analysis, Data Analysis, Actuation Test. It provides various supplementary functions according to vehicle control module.

Main Screen of Vehicle S/W Management



<Figure 1: Vehicle S/W Management Screen>

Resetting Adaptive Values	Function for initializing the adaptive value in ECU.
Version Configuration	Function for setting the option such as ABS and TCS configured in ECU.

Note:

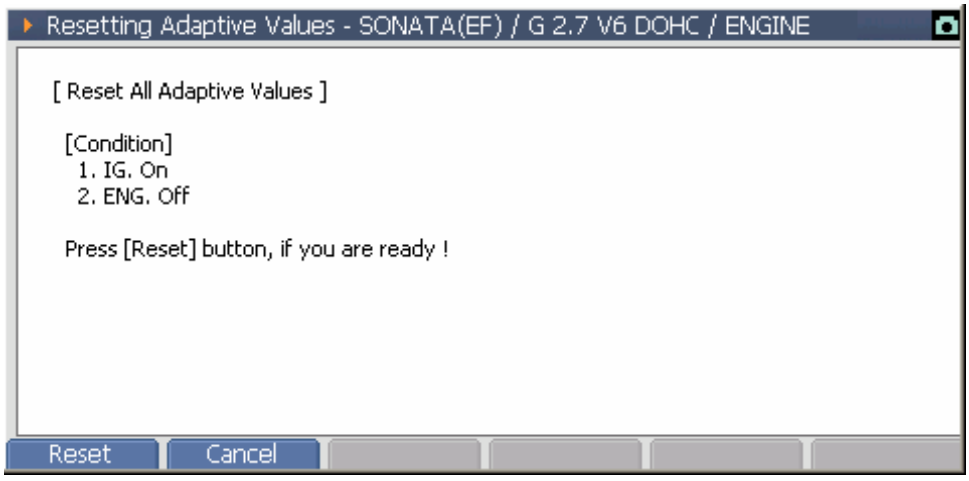
This screen is the item list for specific vehicle. According to the system control module, the item list for "Vehicle S/W Management" may be different.

Example of Vehicle S/W Mangement Function

Resetting Adaptive Values

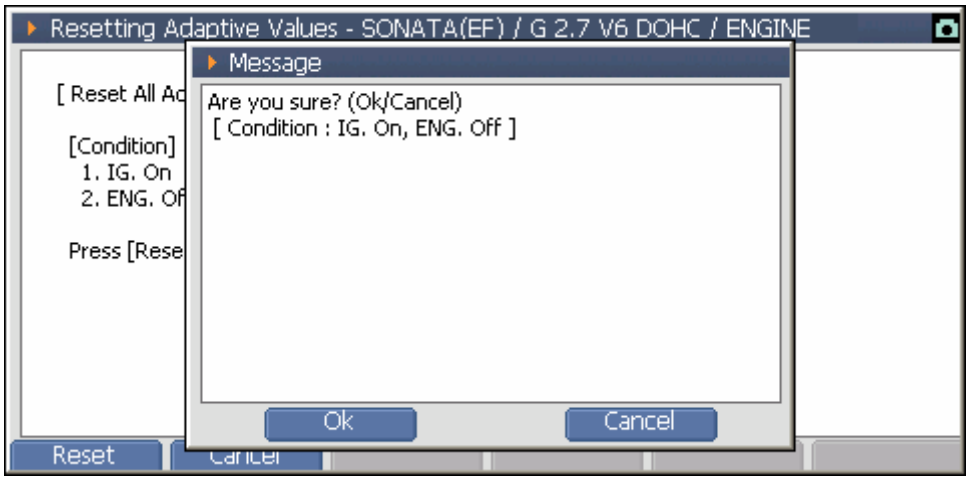
The "Resetting Adaptive Values" function is used to reset adaptive learn data on specific ECUs.

- On the main screen, select Resetting Adaptive Values, then screen will show the window as in <Figure 2>. After checking the conditions shown in screen, select Reset or F1 button.



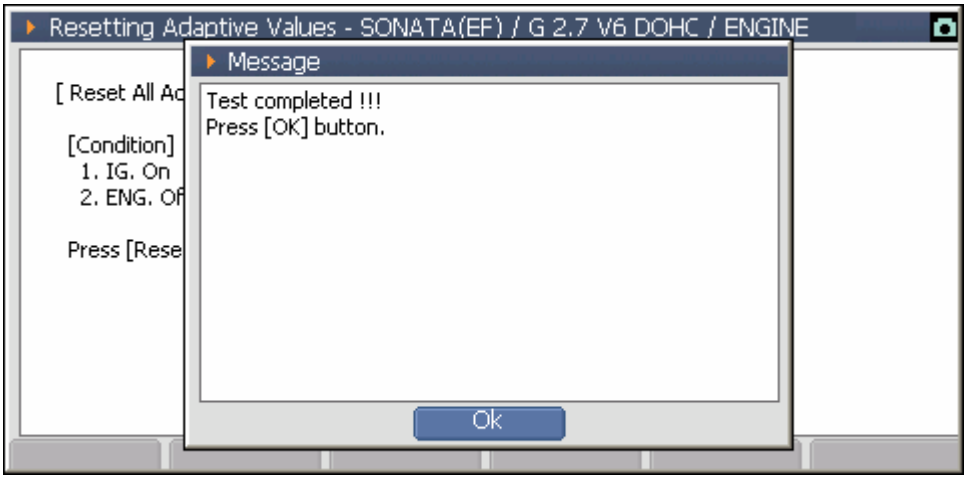
<Figure 2: Resetting Adaptive Values - STEP 1>

- After checking the conditions shown in the message window, select Ok to initialize the adaptive value.



<Figure 3: Resetting Adaptive Values - STEP 2>

- Checking the following message, select Ok to complete initialization of adaptive value.

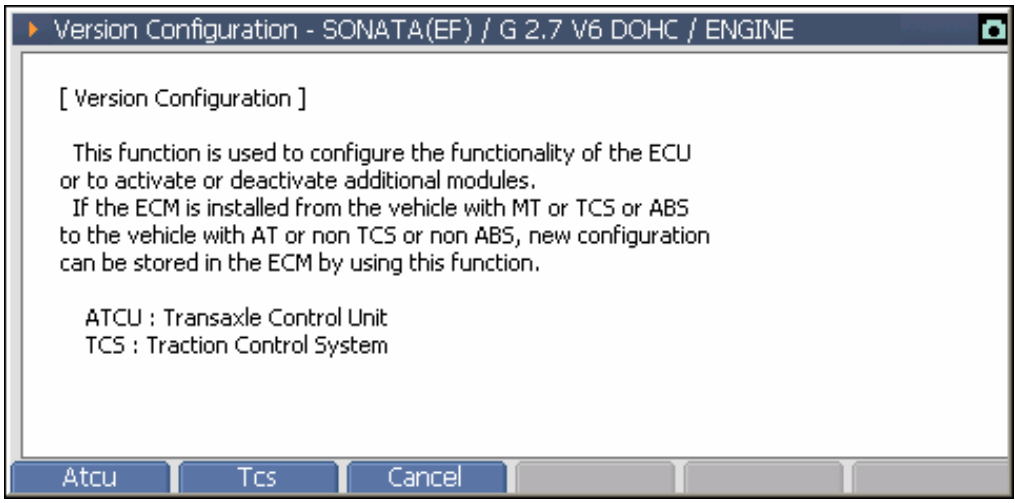


<Figure 4: Resetting Adaptive Values - STEP 3>

Version Configuration

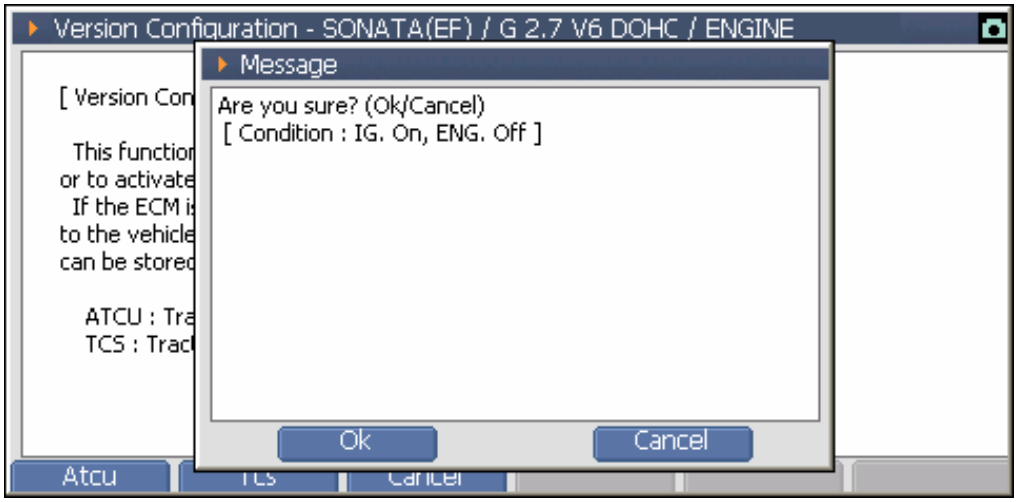
The "Version Configuration" function is used to configure the functionality of the ECU or to activate or deactivate additional modules.

On the main screen, select Version Configuration, then following window will be shown. After checking the sentence on the screen, select the proceeding item.



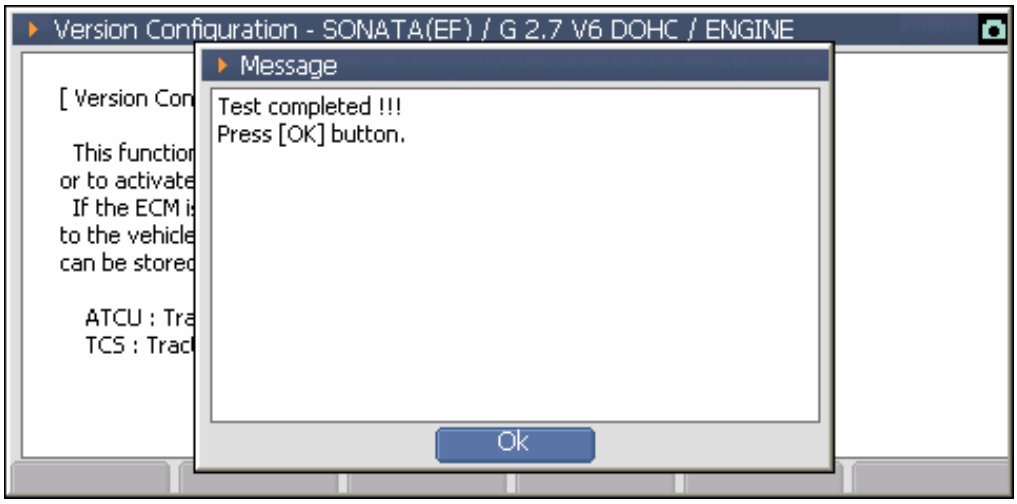
<Figure 5: Version Configuration - STEP 1>

- After checking the conditions on the message window, select the Ok button.



<Figure 6: Version Configuration – STEP 2>

- After showing the following message, select Ok. Then the ECU option setup is completed.



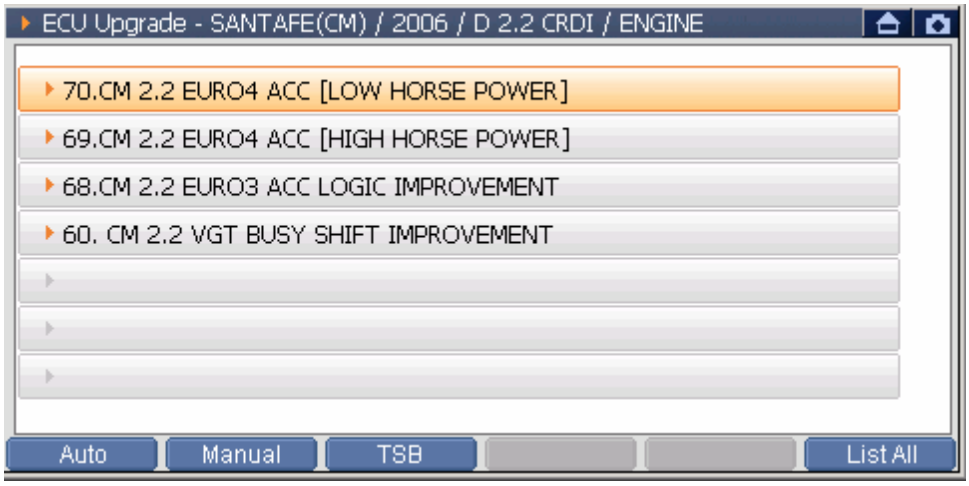
<Figure 7: Version Configuration - STEP 3>

ECU Upgrade

Vehicle Communication Function **Module: A-04-007**

This is to upgrade the ECU program to enhance the performance of ECU. Please be familiar with the instruction and caution before ECU upgrade and then perform the ECU upgrade. Incompliant ECU upgrade may cause serious damages on the ECU.

Introduction of the ECU Upgrade screen

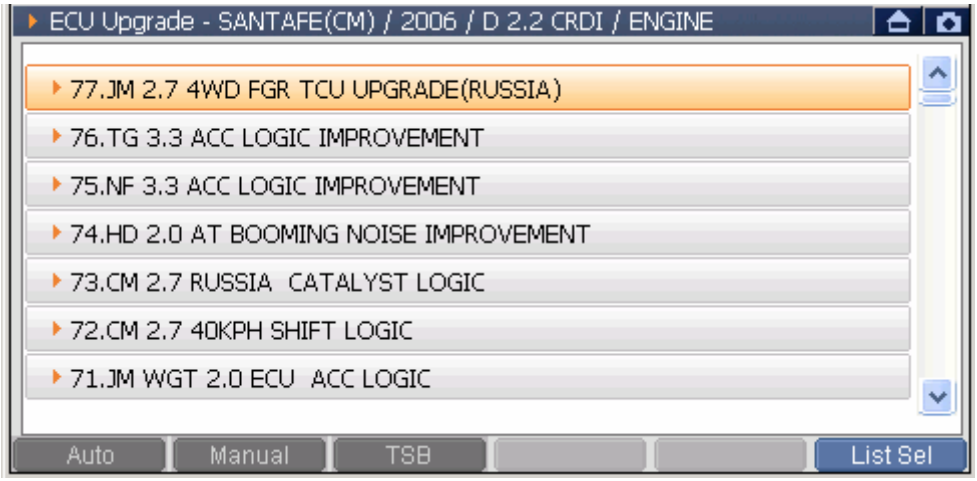


<Figure 1: ECU Upgrade Screen>

Auto	Upgrades the ECU for the selected event automatically.
Manual	Upgrades ECU manually in case auto upgrade is not possible
TSB	Shows the Technical Service Bulletin of selected event. It should be checked before ECU upgrade.
List All	Shows all events list to upgrade ECU.

Check all list

Select List All or F6 button on ECU upgrade screen, and you will see all events list to upgrade ECU.



<Figure 2. List All screen>

Note:

Upgrading ECU or checking TSB is not available on "List All" function. Please select List Sel or F6 button to go back to ECU upgrade screen main for further operation.

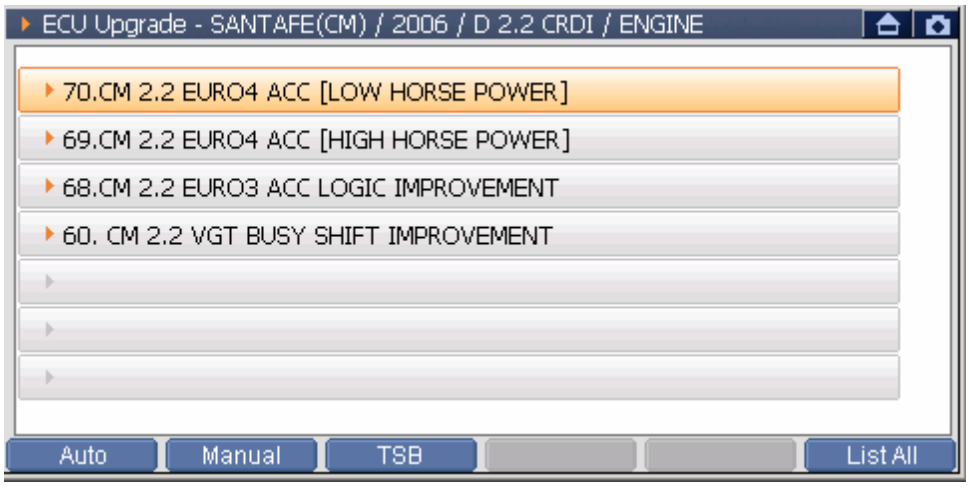
How to ECU Upgrade

How to use the Auto Upgrade

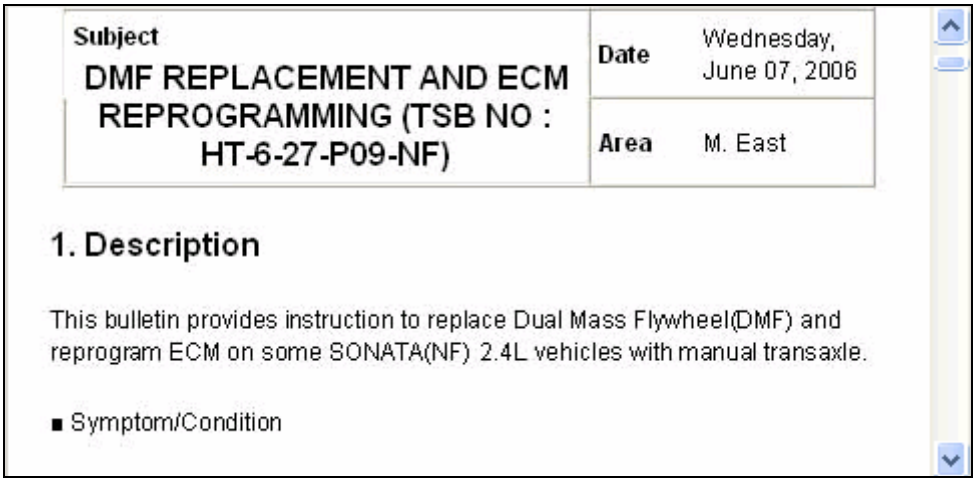
When the ECU of relating vehicle has event to be upgraded and not upgraded yet, the auto upgrade is conducted on the Auto Mode.

1) On the main screen, select

, then screen will be changed to the event selection screen as in the following figure, and all events applied to the vehicle are shown. If there is no event applied, it will not be changed from the main screen to the event selection screen.



<Figure 3: ECU Upgrade Screen>

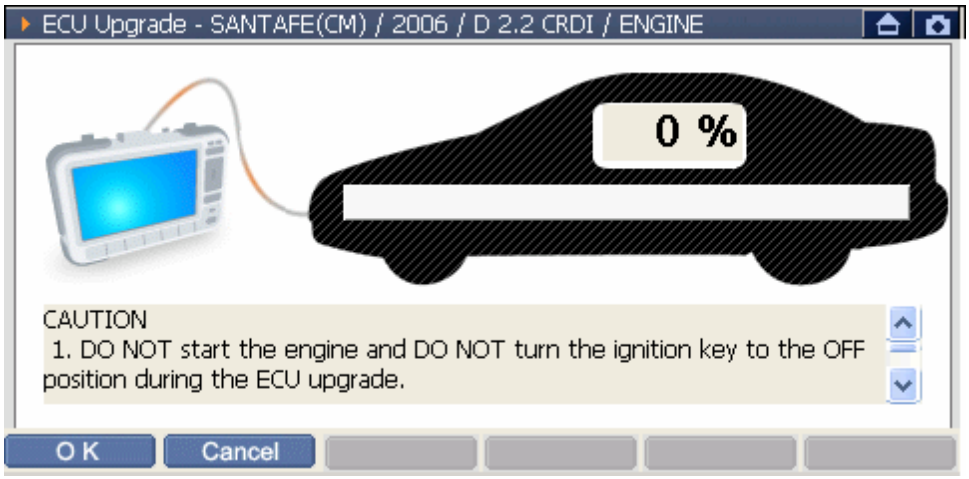


<Figure 4: TSB>

Notice:

After selecting the event to be upgraded, select TSB at the bottom of the screen and check Technical Service Bulletin.

2) After selecting the event on the event selection screen, select Auto or F1 button, then the screen will be changed to prepare ECU upgrade as follows.



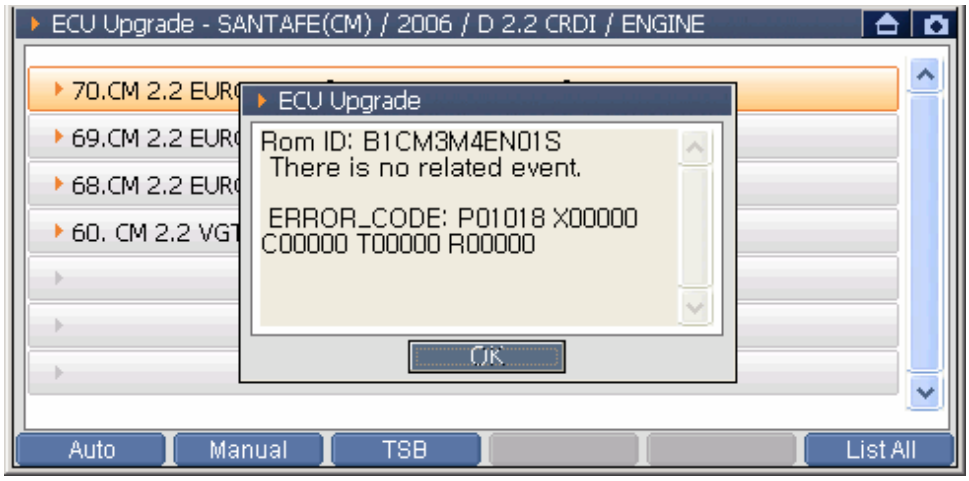
<Figure 5: ECU Auto Upgrade – STEP 1>

◈ Error or Information Message:

◆ When the vehicle was upgraded already with selected event

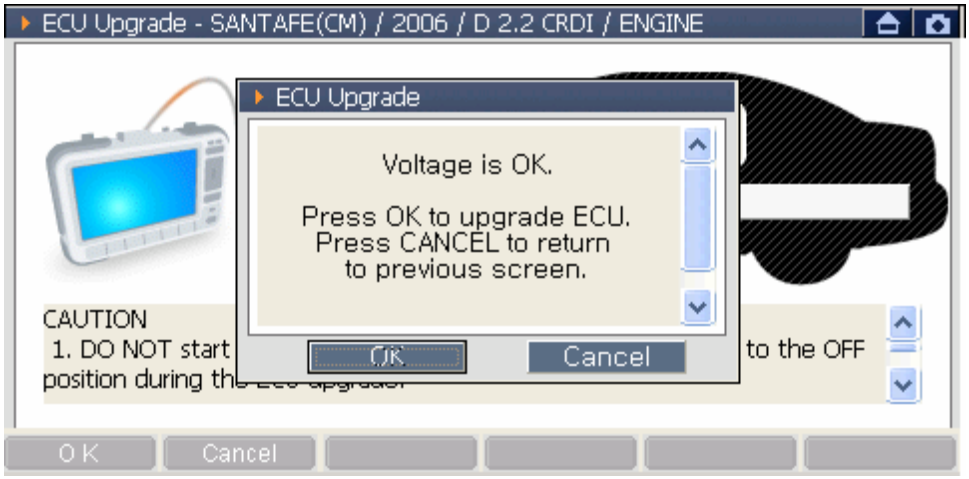
<Figure 6: ECU Auto Upgrade -Information>

◆ Wrong event is selected and applied.



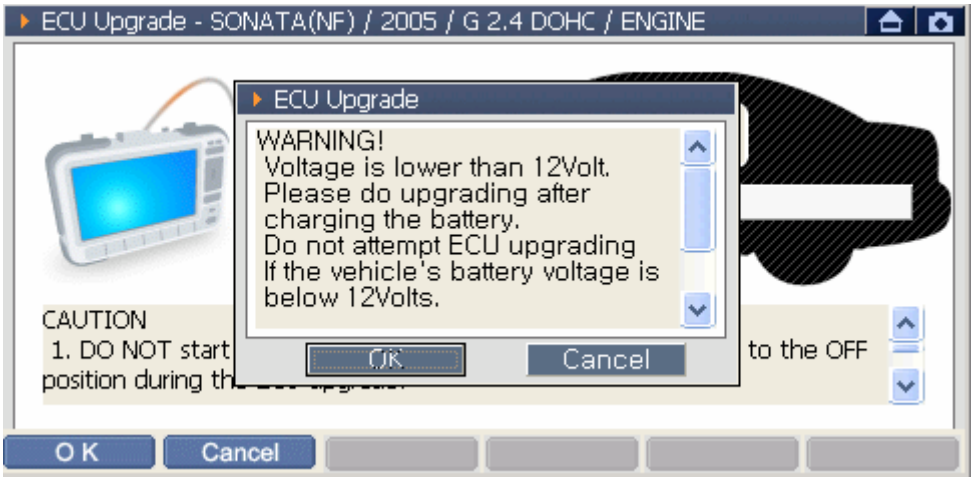
<Figure 7: ECU Auto Upgrade – Error >

3) Select OK in <Figure 5> at the bottom of ECU upgrade windows, then following message will be shown.



<Figure 8: ECU Auto Upgrade – STEP 2>

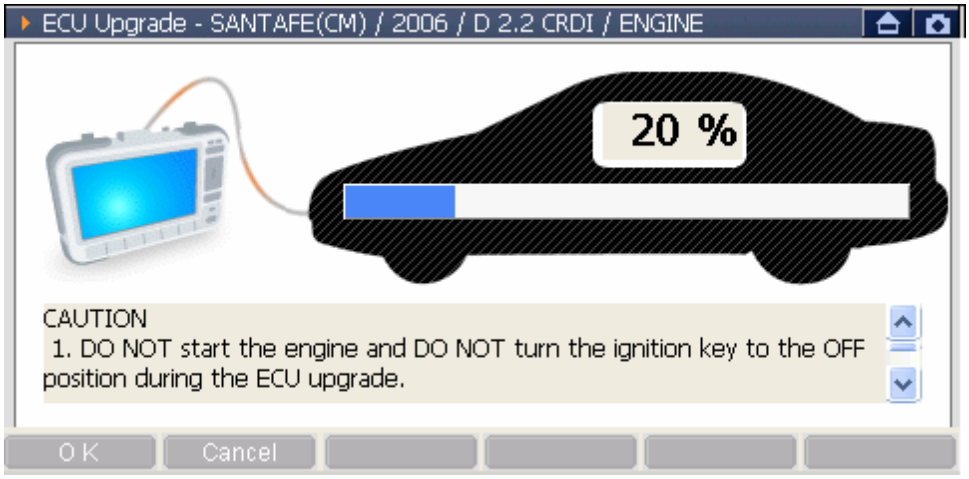
CAUTION



<Figure 9: Low Voltage>

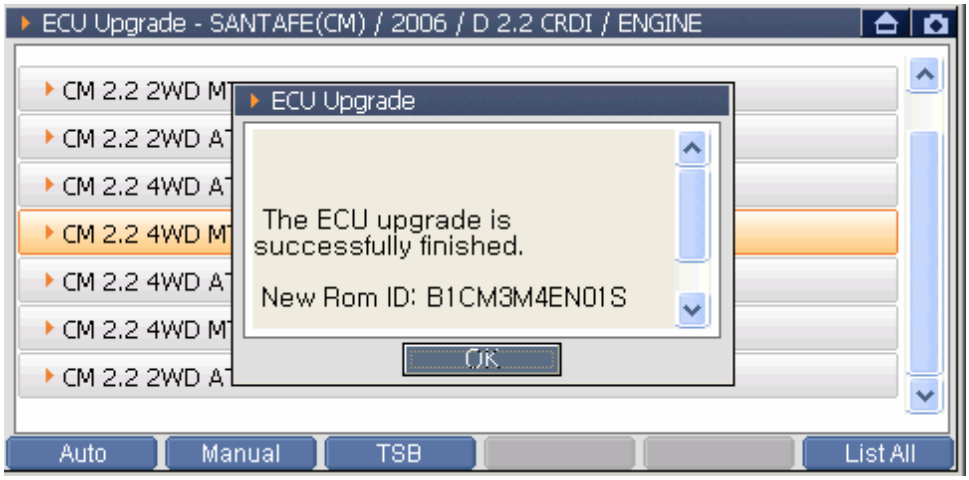
The pop up screen warns low voltage of battery prompted in the STEP 2 battery voltage check level. To follow the instruction given before proceeding the ECU upgrade.

4) As it confirms the voltage is normal, select OK button, and upgrade will be started as shown in following figure.



<Figure 10: ECU Auto Upgrade – STEP 3>

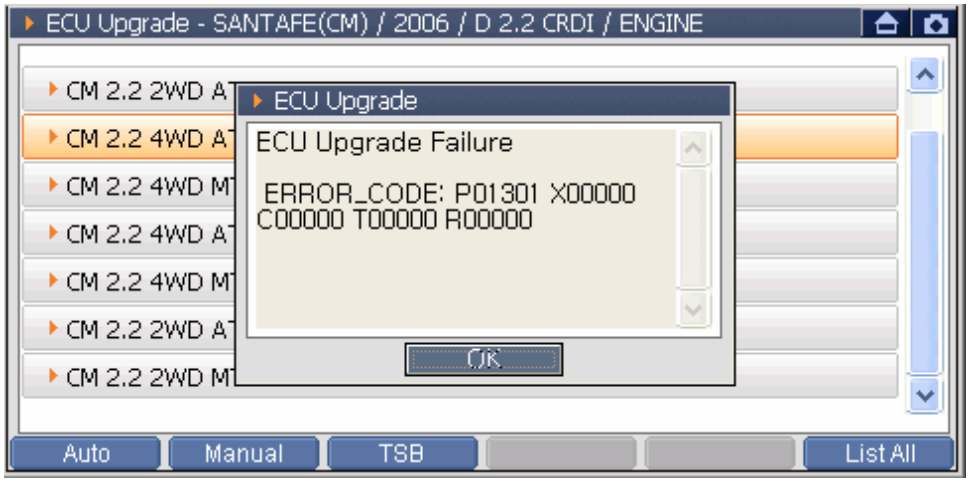
5) After completing all ECU upgrade procedure, the following message will be shown.



<Figure 11: ECU Auto Upgrade – STEP 4>

◈ **Error Message:**

If an error occurred during upgrade ECU, the following message will be displayed.



<Figure 12: ECU Auto Upgrade – Error>

Caution for processing

The time required to complete an ECU upgrade will vary. Menus and buttons are all disabled during the upgrade process.

CAUTION

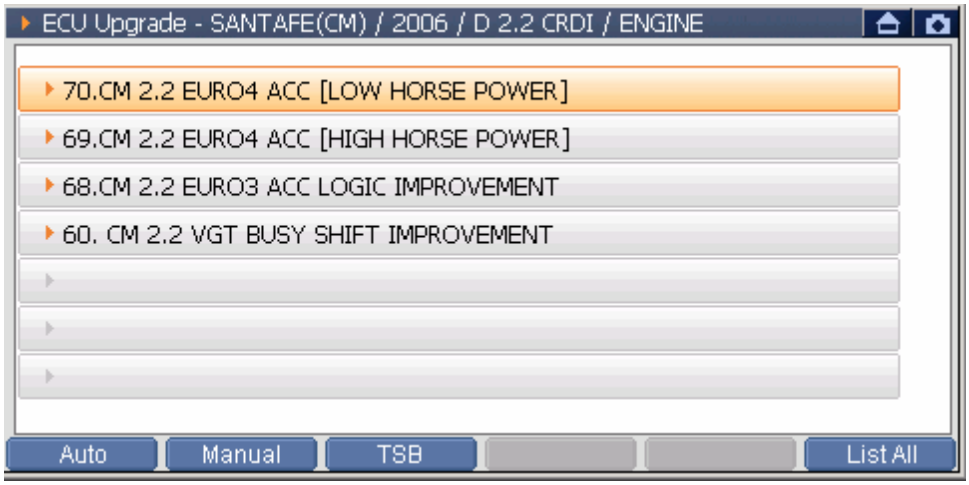
Following instructions should be kept during the upgrade process, otherwise ECU may be damaged.

- Do not start the engine or turn the ignition key OFF.
- Do not operate any vehicle accessories during the upgrade process.
- Do not disconnect G-scan during the upgrade process.
- Review the TSB (Technical Service Bulletin) before upgrade, as upgrade procedures can be different for each event.

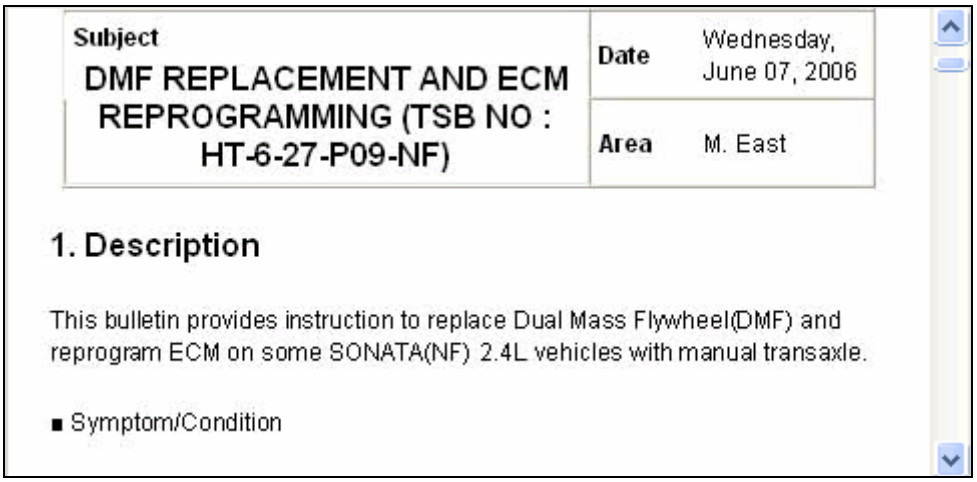
How to conduct the Manual Upgrade

The manual upgrade of ECU is required only when auto upgrade is failed, Unlike the auto upgrade, user should select the event and enter the password.

1) On the main screen, select ECU Upgrade, then the screen will be changed as following figure and all events to the vehicle are shown.



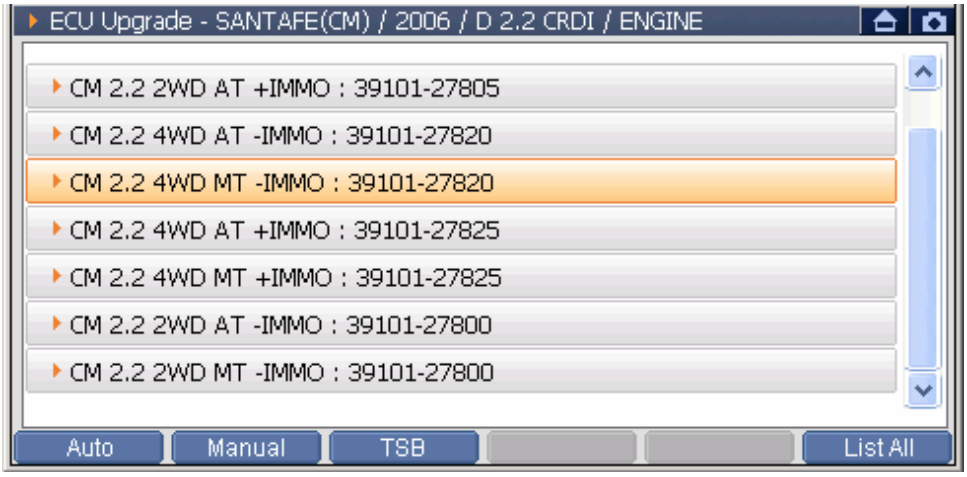
<Figure 13: ECU Upgrade Screen>



<Figure 14: TSB>

After selecting the event to be upgraded, select TSB at the bottom of the screen to check before upgrade

2) After selecting the event, select Manual or F2 button, then the screen will be changed to the system selection screen as shown in following figure.



<Figure 15: ECU Manual Upgrade – STEP 1>

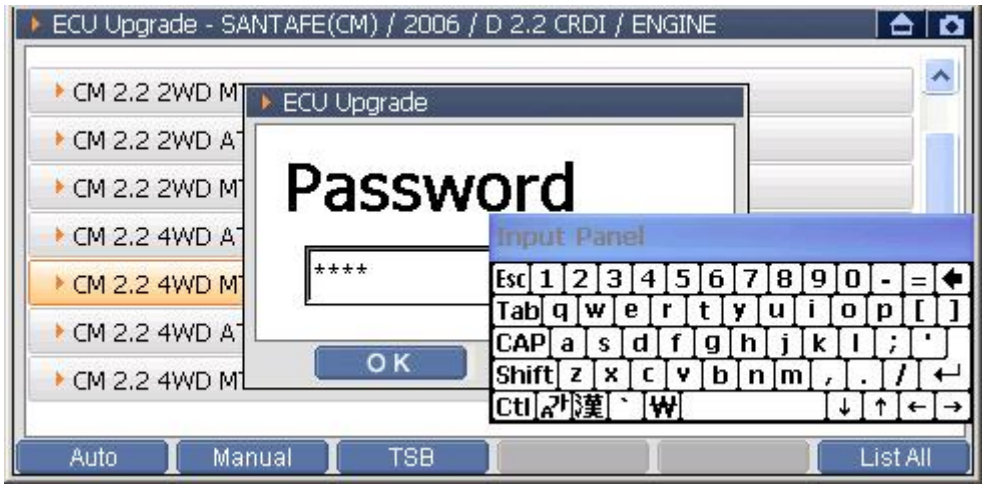
Caution

Please make sure to select compliant system of the vehicle specification.

3) Select Manual or F2 button, then the message window requiring password will be displayed as following figure.

<Figure 16: ECU Manual Upgrade – STEP 2>

4) After entering the password using the stylus pen as following figure, select OK at the bottom of the message window.



<Figure 17: ECU Manual Upgrade – STEP 3>

How to input the password:

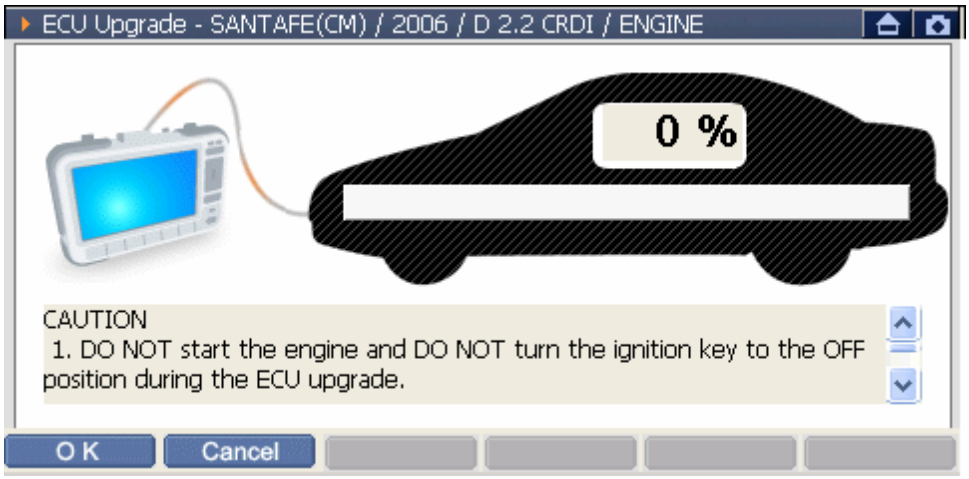
① When the cursor move to blank text to prompt input panel.

② To input password in the blank text by the input panel.

Note:

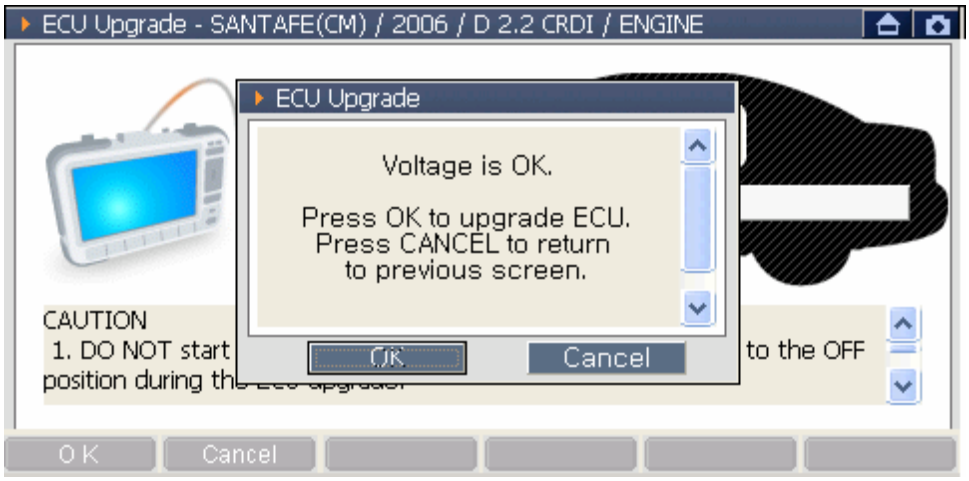
- If you'd like to move the input panel, to drag the upper-side of input panel to move input panel by stylus pen.
- H/W button does not support to input the password, please use stylus pen only.

5) If the password is correct, the following preparing screen will be displayed.



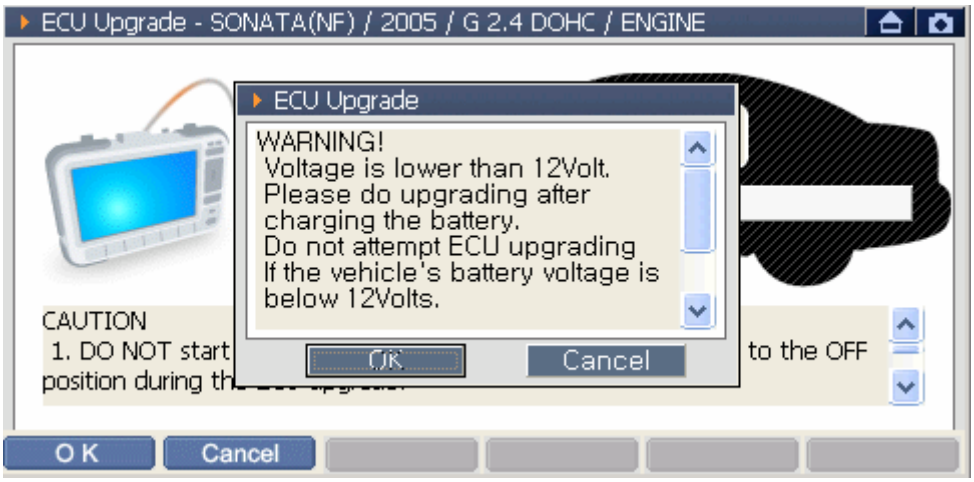
<Figure 18: ECU Manual Upgrade – STEP 4>

6) Select O K at the bottom of the upgrade proceeding window, then following message will be shown.



<Figure 19: ECU Manual Upgrade – STEP 5>

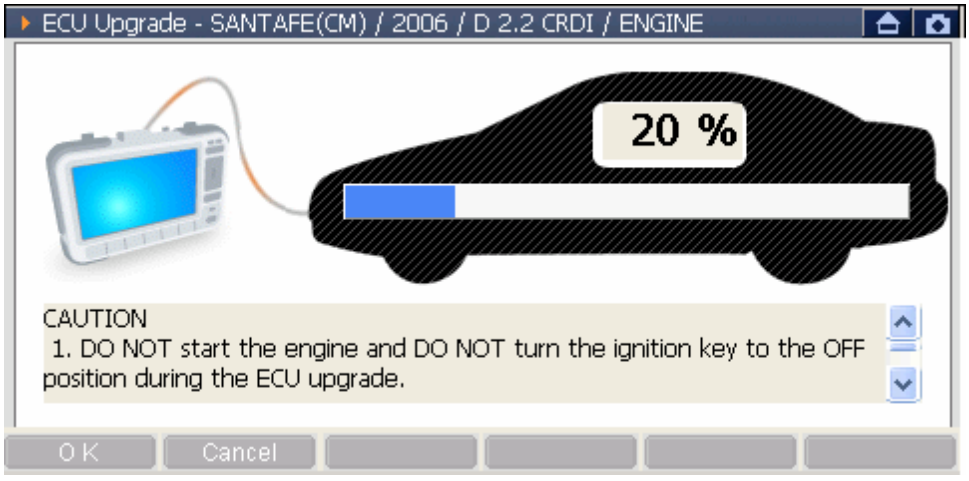
CAUTION



<Figure 20: Low Voltage>

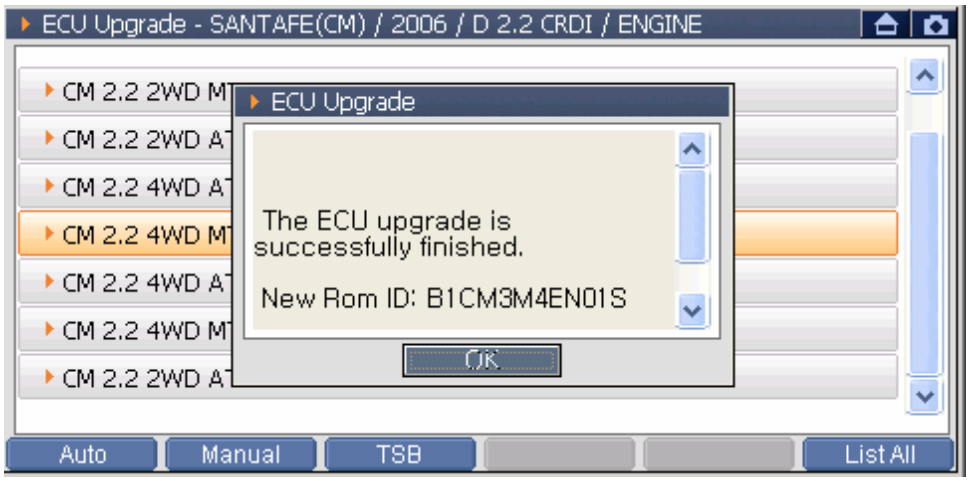
The pop up screen warns low voltage of battery prompted in the STEP 5 battery voltage check level. To follow the instruction given before proceeding the ECU upgrade.

7) As it confirm the voltage is normal, select O K to start upgrading as shown in the following figure.



<Figure 21: ECU Manual Upgrade – STEP 6>

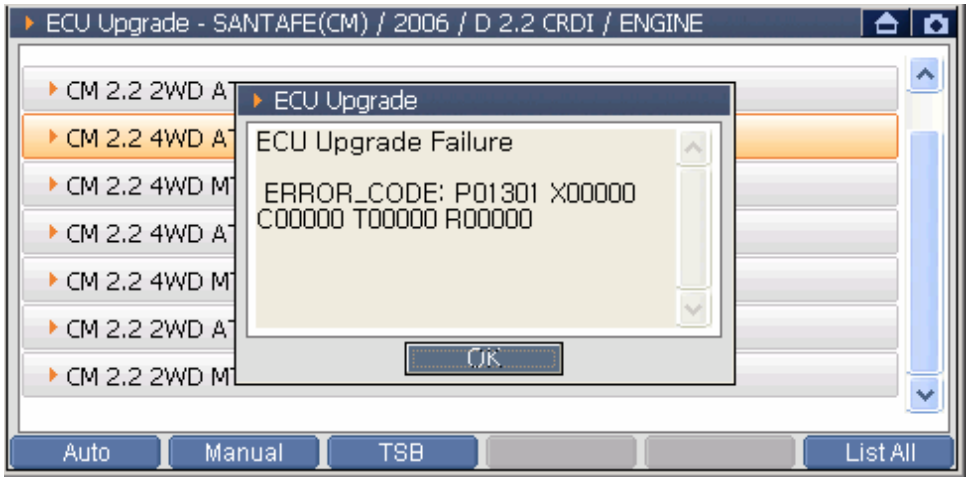
8) After completing all ECU upgrade, the following message will be displayed.



<Figure 22: ECU Manual Upgrade – STEP 7>

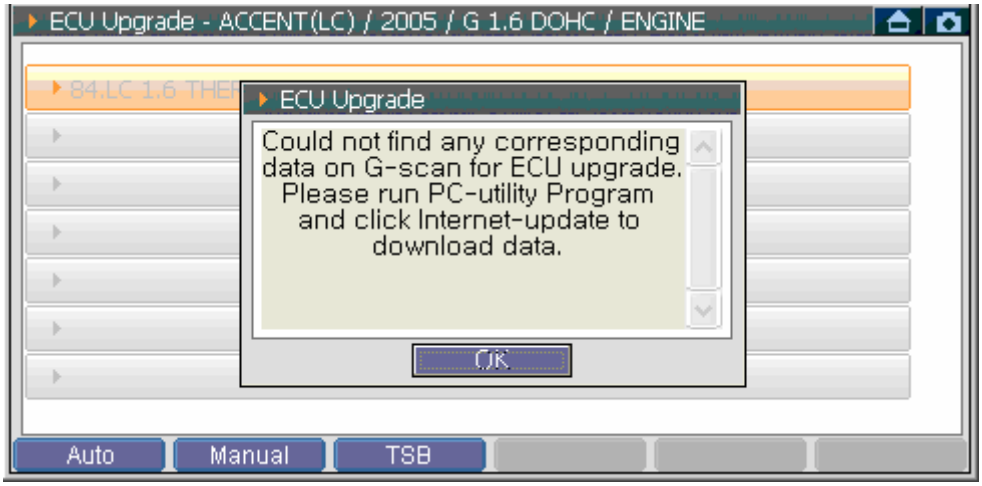
◈ **Error Message:**

If any error occurred during ECU upgrade, the following message will be displayed.



<Figure 23: ECU Manual Upgrade- Error>

◈ Error Message: No ROM Data



<Figure 24: ECU Upgrade Data Error Message>

This is the error message appeared when ECU upgrade is tried without ROM data for ECU upgrading.

(When there is no ROM data, the event item is shown in vague.)

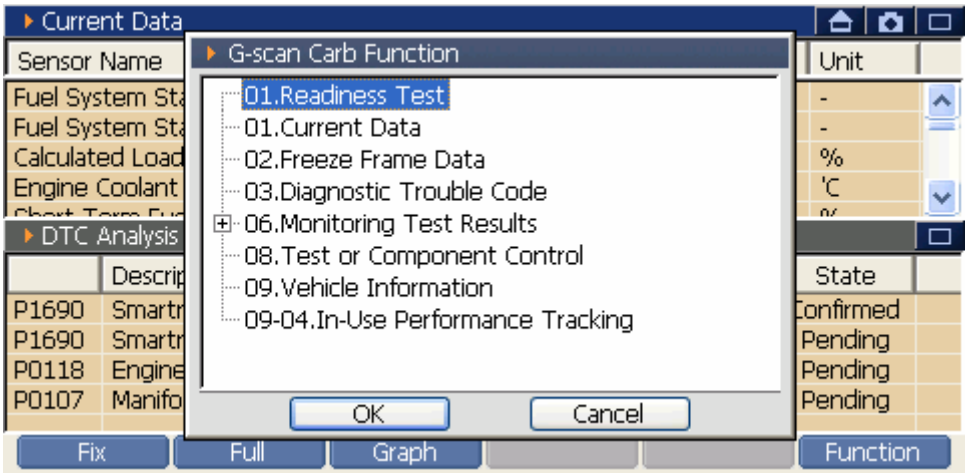
< **Could not find any corresponding data on G-scan for ECU upgrade. Please run PC-utility program with connecting internet and update the SD card to download ROM data.** >

CARB OBD-II

Vehicle Communication Function **Module: A-04-008**

CARB OBD-II is to diagnose the power train of the vehicle which uses CARB OBD-II protocol.

CARB OBD-II



<Figure 1. CARB OBD-II Function List>

CARB OBD-II Function Menu

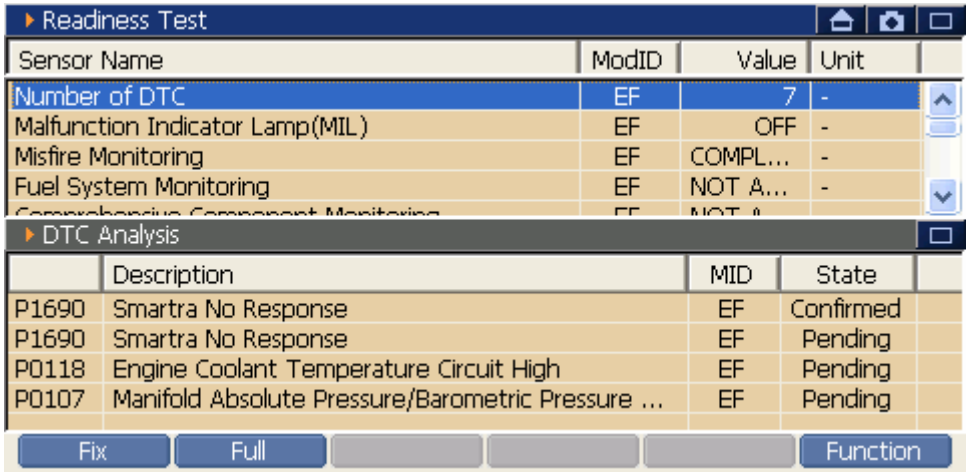
On the CARB OBD-II screen, select Function or F6 button. And then the pop-up menu for the OBD-II function will be shown as <Figure 1>. In G-scan CARB OBD-II, the detail function will be changed only using the pop-up menu as <Figure 1>.

Note:

- When conducting diagnosis in the CARB OBD-II, the location of DTC analysis is fixed on the bottom and CARB OBD-II Function will be located on upper part.
- According to the ECU specification, the list in the pop-up menu may be different.

Readiness Test

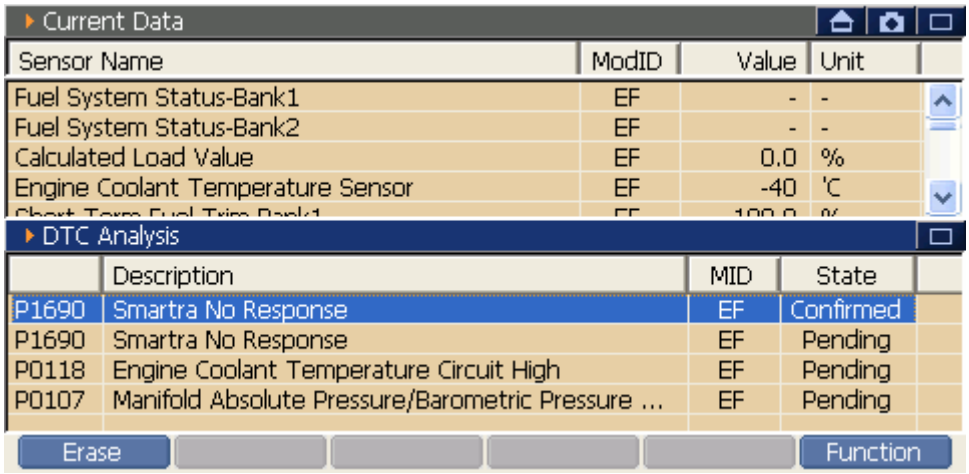
The type and result of the READINESS TESTS supported by more than one MODULE within the vehicle will be displayed. The number of DTCs present and the MIL status will also be displayed.



<Figure 2: DTC & Readiness Test>

Current Data

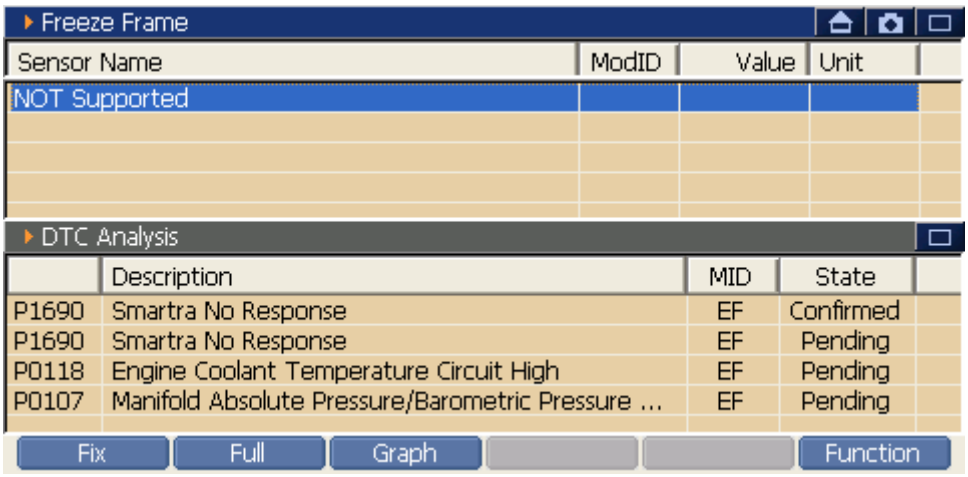
The CURRENT DATA MODE allows for sensor values and switch states to be displayed, based upon the concept that one item may be supported by several modules. Supporting module information is displayed in this mode.



< Figure 3: DTC & Current Data>

Freeze Frame Data

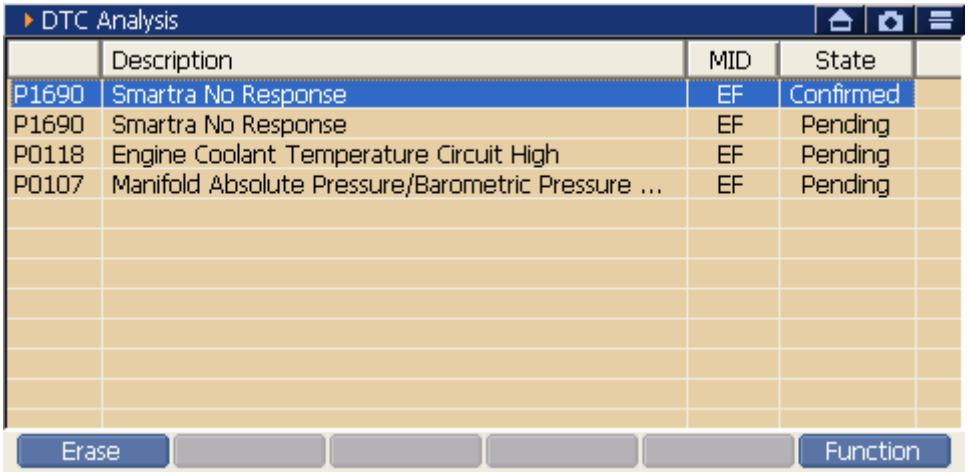
The FREEZE FRAME DATA displays the data values stored in the Engine Control Module at the point when the first conformed DTC is detected.



< Figure 4: DTC Analysis & Freeze Frame>

Diagnostic Trouble Code

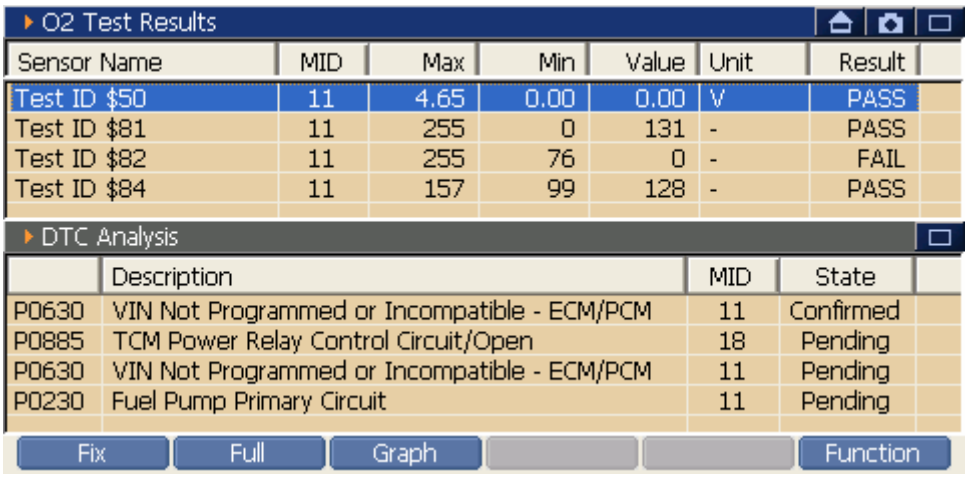
At this level, DIAGNOSTIC TROUBLE CODES (DTC) are Displayed based upon the concept that several modules may support one DTC. Supporting module information is displayed in this mode.



< Figure 5: DTC Analysis>

O2 Test Result

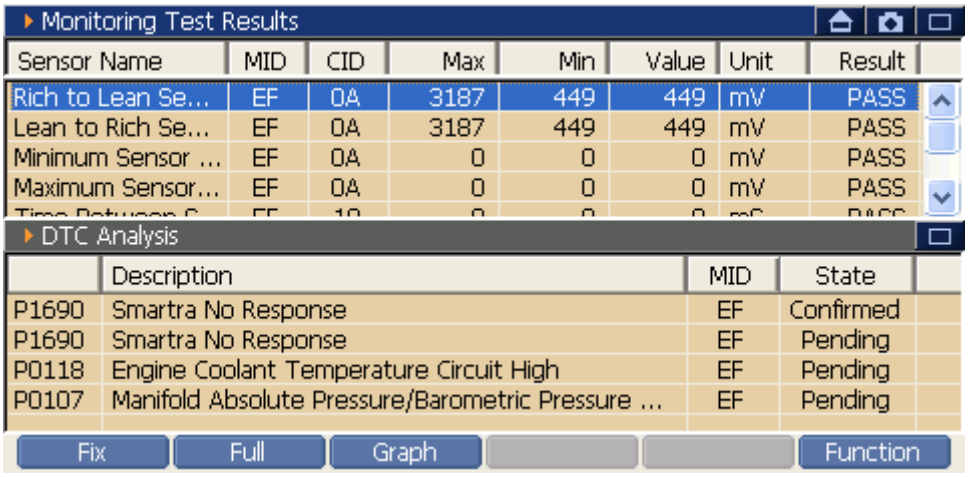
The results of the on board oxygen sensor monitoring test can be displayed in this mode. Note that only items related to the oxygen sensor will be displayed.



<Figure 6: O2 Test Result>

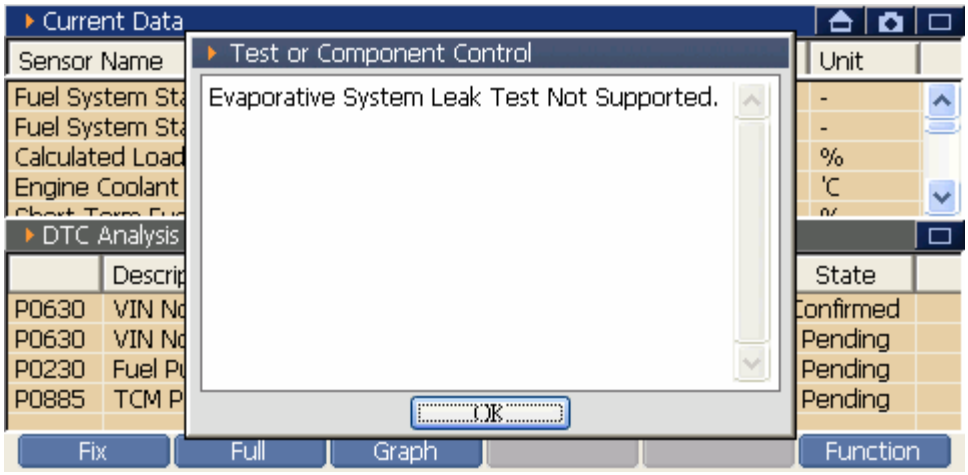
Monitoring Test Result

The results of on board monitoring tests conducted during normal driving are displayed this mode.



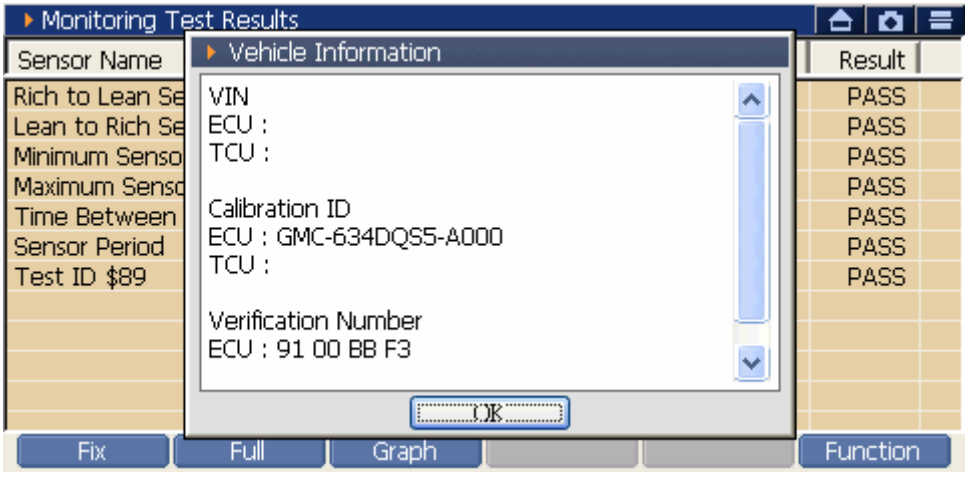
< Figure 7: DTC Analysis & Monitoring Test Result>

Test or Component Control



<Figure 8: Test or Component Control >

Vehicle Information



<Figure 9: Vehicle Information >

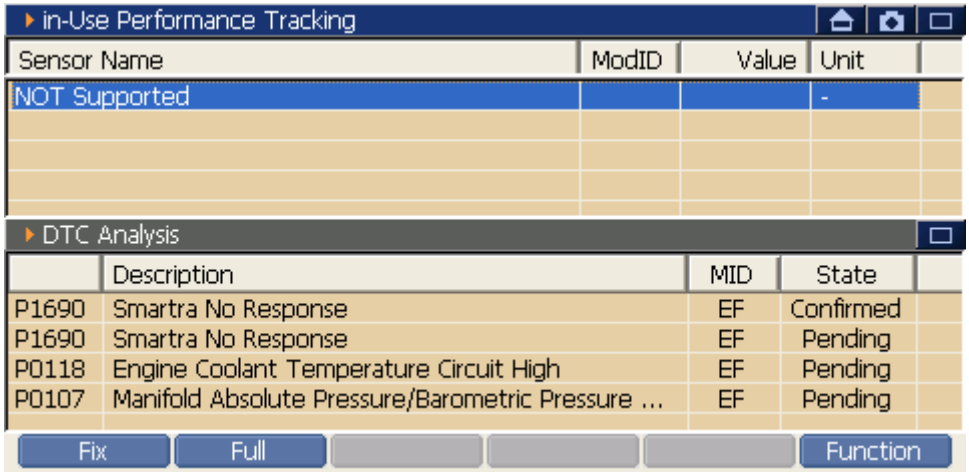
In-USE Performance Tracking

This data is used to support possible regulatory requirements for In-use Performance Tracking. Manufacturers are required to implement software algorithms that track in-use performance for each of the flowing component:

- Catalyst bank 1
- Catalyst bank 2
- Primary oxygen sensor bank 1
- Primary oxygen sensor bank 2
- Evaporative 0.020" leak detecting system
- EGR system
- Secondary air system

The numerator for each component or system shall track the number of time that all conditions necessary for a specific monitor to detect a malfunction have been encountered. The denominator for each component or system shall track the number of times that the vehicle has been operated in the specified conditions. These conditions are specified for each monitored component or system.

The ignition counter shall track the number of times that the engine has been started. All data items of the In-use Performance Tracking record have to be reported in the order as shown.



<Figure 10: In-USE Performance Tracking >

Flight Record

Vehicle Communication Function **Module : A-04-009**

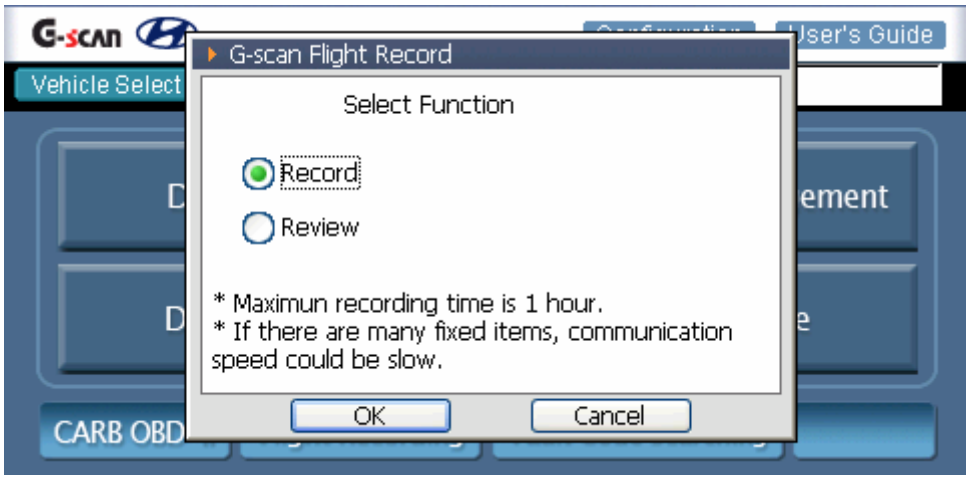
The function of flight record is to save the current data of control module in order to offer valuable data which can be retrieved at any time for analysis.

Providing the trigger function (marking specific timing) and "DTC Record" mode, the staus of the control module can be checked at the moment of the DTC occurred or abnormal symptom.

Starting the Flight Record

Select

on the main screen, pop-up window as <Figure 1> will be shown.

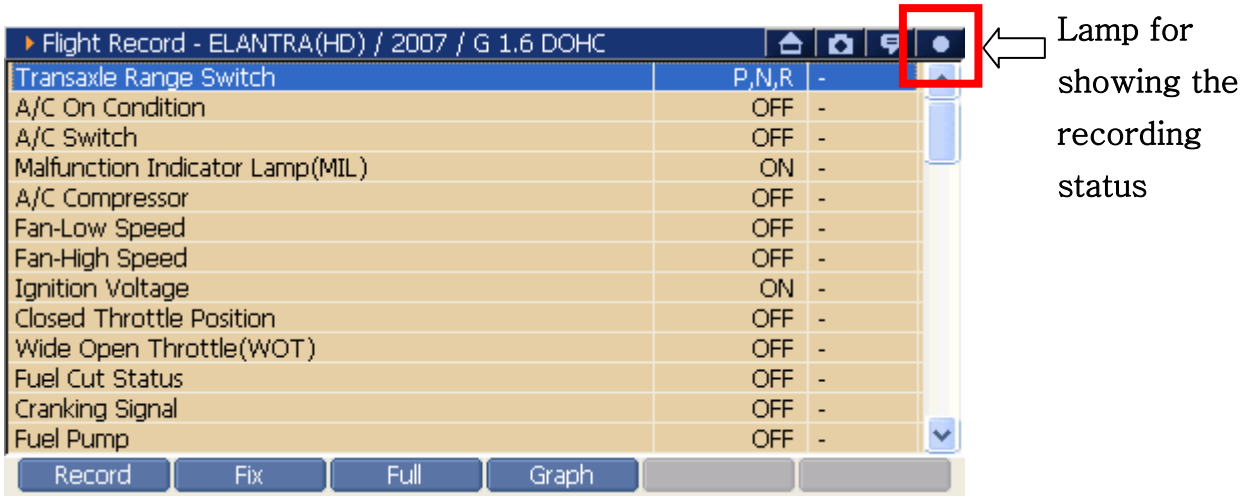


<Figure 1: Record/Review Selecting Box>

Record	Saves the data by Flight Record function
Review	Retrieves a Flight Record file saved previously

Starting the Record Mode

1) In the selection box of <Figure 1>, select the Record Mode using the stylus pen or [▼] [▲] buttons and press [ENTER] button or [OK], then <Figure 2> screen will be shown.



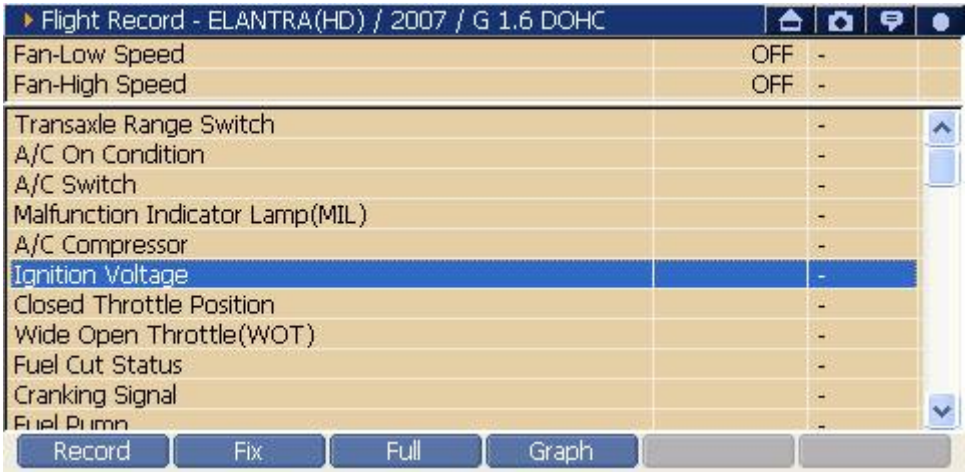
<Figure 2: Flight Record Main Screen>

	Recording check lamp. During recording data, it turns on in red. (Normal: black, Record: red)
Record	Starts recording selected item.
Fix	Selects the item for recording.
Full	Separating the service data screen into two(left & right), 26 data are shown in the screen at maximum. * In Full mode, Recording is not supported.
Graph	Selected item can be shown in graph.

Notice:

- When item is not shown, move the right scroll bar using the stylus pen, or pressing [▼] [▲] buttons to find.
- If you want to return to main screen, select [⌂] on top right side or [ESC] button.

2) On the screen of <Figure 2>, choose the items and select [Fix] or [F2] button to fix.



<Figure 3: Selecting the item for saving>

Note:

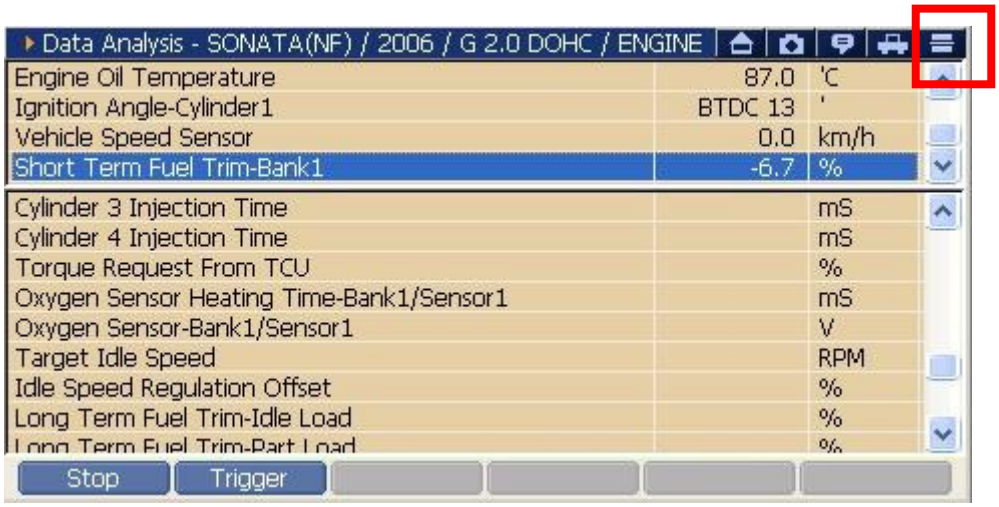
- When the number of selected item is large, the data recording speed would be slower according to the vehicle communication protocol.

3) After fixing the items, select Record or F1 button and following selection box will be shown.

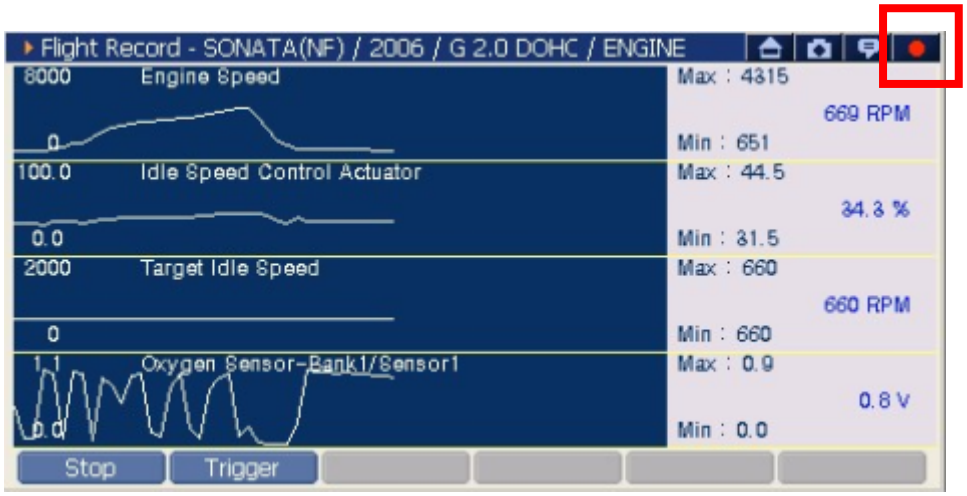
<Figure 4: Record Mode Selection Box>

Manual Record	Record data until Stop is pressed manually.
DTC Record	Records data until DTC occurs and pop-up window of termination of record will be displayed, And you can also stop it manually by selecting Stop.

4) In <Figure 4>, select the Record Mode and select OK, then it starts recording as shown in <Figure 5-1> or <Figure 5-2>. The recording lamp will turn on in red.



<Figure 5-1: Text mode recording>



<Figure 5-2: Graph mode recording>

Stop	Stop recording data
Trigger	When user wants to mark a certain moment during recording data, user selects the Trigger button to mark the time.

Note:

Record processing screen of <Figure 5-2> is shown when the data recording is processed in graph mode after selecting Graph or F4 button in <Figure 3>.

Note:

- During recording the Data, it is not possible to switch the graph mode to the text mode (vice versa.)
- At switching from text mode to graph mode, at most 4 items can be selected.

Stop Recording the Data in each Record Mode

Stop Recording the Data and Create the Data file in Manual Record Mode

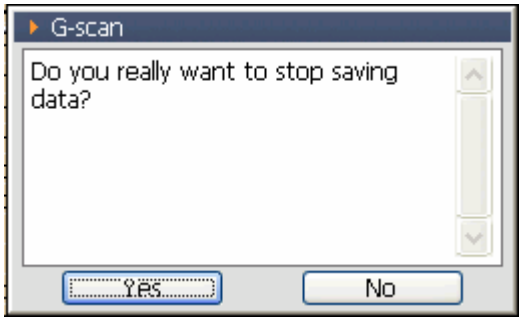
1) During recording the data, press Stop or F1 button, the data saving confirm window is shown as in <Figure 6>.

<Figure 6: Data Saving Confirm>

2) Recording data is stopped at selecting Stop and the data saving confirm pop-up window is shown as in <Figure 6>.

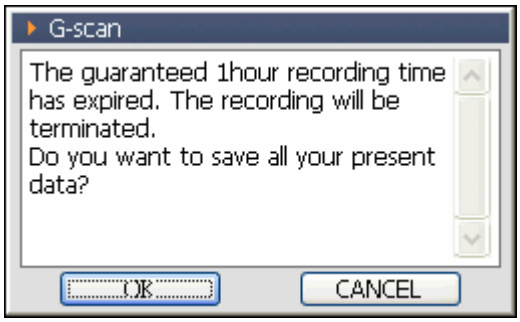
OK : Save the data and another pop-up window will be displayed as in <Figure 9>.

Cancel : The pop-up window for re-confirming the cancelling of data saving as in <Figure 7>. Select Yes button in <Figure 7>, the recorded data will be deleted(at selecting No button, return to <Figure 6>).



<Figure 7: Data Saving Cancel Re-confirm>

Note:

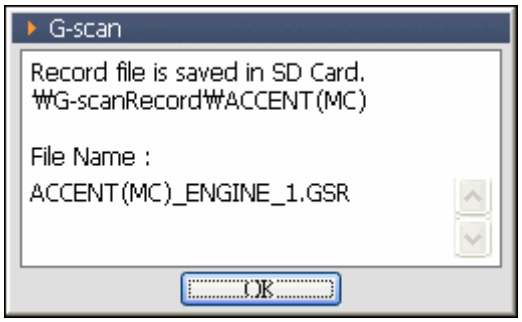


<Figure 8: Saving Stop Recording Pop-up in 1hr of Data Recording >

When data recording time reaches to 1 hour, the message as in <Figure 8> will be shown and the data recording is stopped automatically.

If additional Data recording is required, save the currently recorded data and re-start the record mode.

3) Select OK in the data saving confirm window in <Figure 6>, additionally confirming window for checking the data saving path and saving file name will be shown as in <Figure 9>. Select OK, and the save mode is terminated.



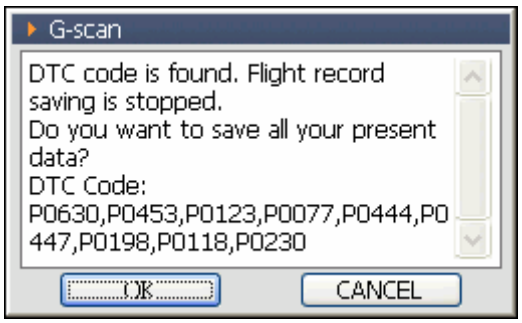
<Figure 9: Data Recording Information Confirm>

Note:

To change saved file name, please refer to the **'How to change the file name'** in rear page.

Stop the Recording Data and Create the Data file in DTC Record Mode

1) When DTC occurs or the user selects Stop as in the manual mode, the window for confirming the stop recording will be shown as in <Figure 10> or <Figure 6>.

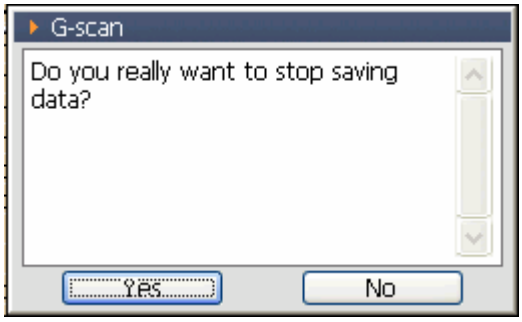


<Figure 10: Saving Stop Message by DTC occurrence>

At occurring DTC, the recording is stopped and the pop-up window for confirming data saving as in <Figure 10> will be shown.

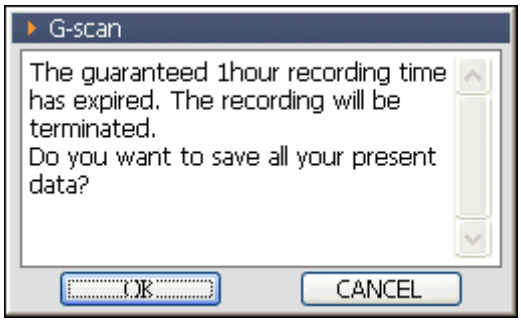
OK : Save the data using pop-up window as in <Figure 13>.

Cancel : The pop-up window for re-confirming the cancelling of data saving as in <Figure 11>. Select Yes in <Figure 11>, the recorded data will be deleted(at selecting No, return to <Figure 10>.



<Figure 11: Data Saving Cancel Re-confirm>

Note:

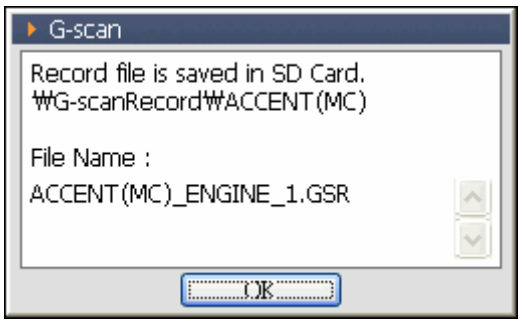


<Figure 12: Saving Stop Pop-up at 1hr of Data Recording >

When for data recording time reaches to 1 hour, the message as in <Figure 12> will be shown and the data recording is stopped automatically.

If additional data recording is required, save the currently recorded data and re-start the record mode.

2) Select OK in the recording stop confirming window in <Figure 10>, the saving data confirming window for checking the data saving path and saving file name will be shown as in <Figure 13>. Select OK, and the save mode is terminated.



<Figure 13: Data Recording Information Confirm>

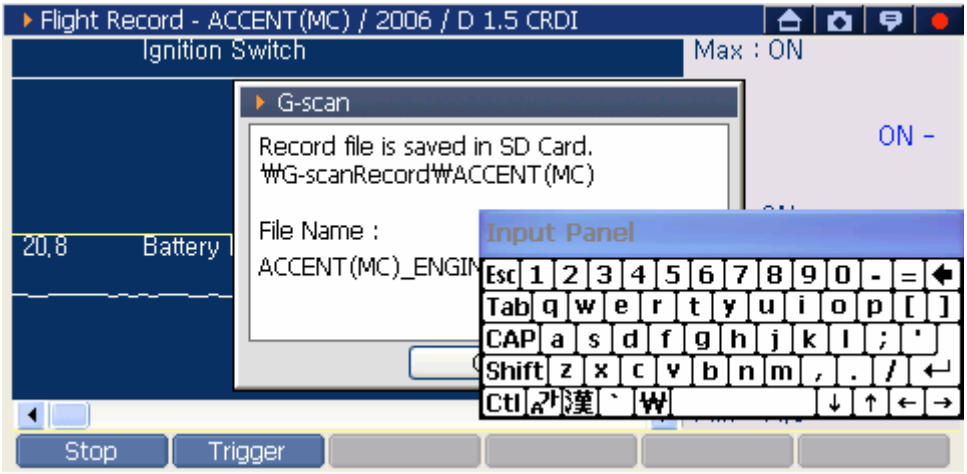
Note:

To change saved file name, please refer to the **'How to change the file name'** in rear page.

Note:

When the data recording confirm window is shown as <Figure 9> at saving the Flight Record file, the saved file name is used as default file name. When user wants to change the file name, select the file name zone in the saving information window using the stylus pen, then the Input Panel as <Figure 14> is shown. After changing the file name, select OK.

How to change file name



<Figure 14: Change the saving file name>

Note:

How to change the file name

③ On the screen of <Figure 13>, select the region under the file name using stylus pen, then an Input Panel is shown.

④ Using button in the Input Panel, delete the default file name.

⑤ Input new file name in the file name box using the Input Panel.

⑥ Select OK in <Figure 13>, the Flight Record file is saved.

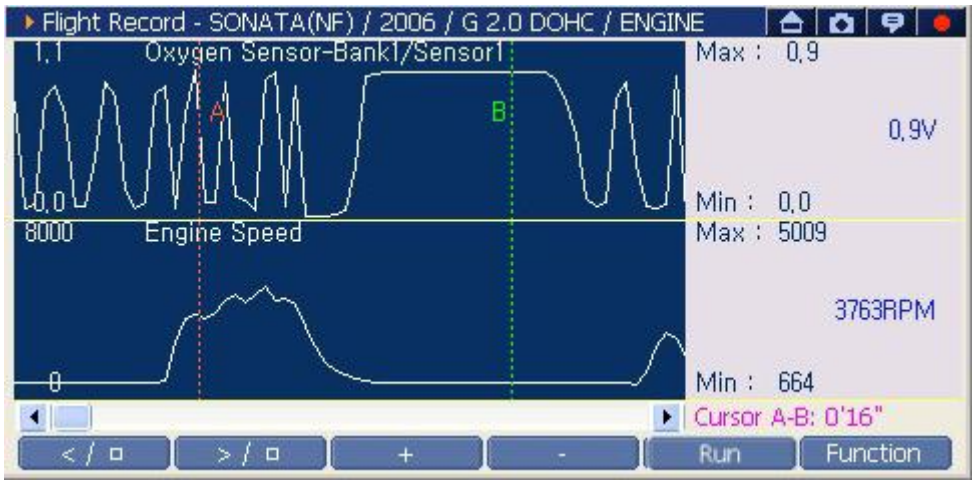
Note:

- If OK is covered by the Input Panel, drag the upper side of the Input Panel using the stylus panel, then you can move the Input Panel.
- H/W button does not support to change the file name. Use stylus pen only.

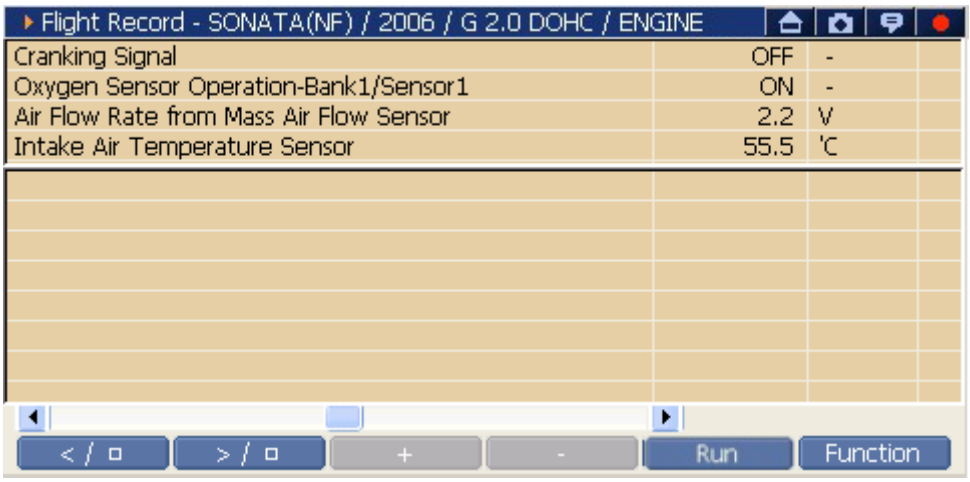
How to use the function button at analyzing the recording data of flight record

Function Button of Flight Record Data Analyzing Screen

After completing Flight Record, the screen is changed to <Figure 15-1> or <Figure 15-2>, as the recorded Data can be analyzed.



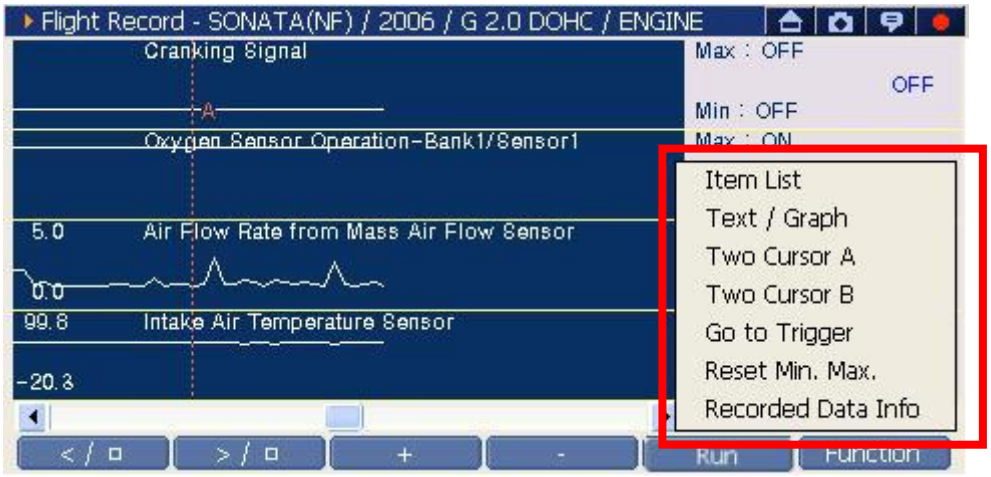
<Figure 15-1: Data analyzing in graph mode>



<Figure 15-2: Data analyzing in text mode>

< / □	Play backward or stop.
> / □	Play forward or stop.
+	Scale up the analyzing Data on time axis.
-	Scale down the analyzing Data on time axis.
Run	Resets the data recording condition.
Function	Show the Function menu * For details, refer to the "Function Menu of Flight Record Data Analyzing Screen" described in next page.

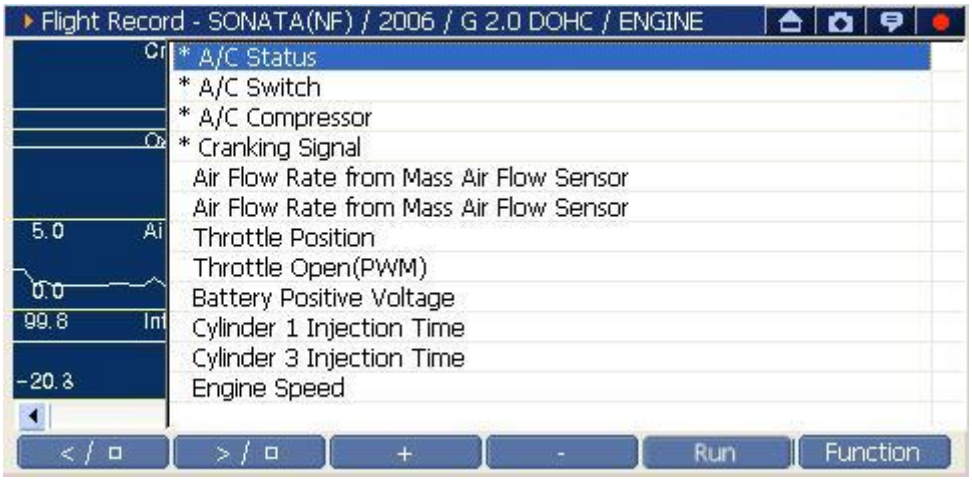
Function Menu of Flight Record Data Analyzing Screen



<Figure 16: Show the Function Menu>

①	**Item List**	Among the data item recorded in the Flight Record function, change the data item to show in graph mode (Available in graph mode only).
②	**Text/Graph**	Switch between text mode/ graph mode.
③	**Two Cursor A**	Cursor "A" can be repositioned in the time division by activating Cursor "A"
④	**Two Cursor B**	Cursor "B" can be repositioned in the time division, by selecting cursor "B" in item list and activating cursor "B"
⑤	**Go To Trigger**	Move where trigger button is pressed.
⑥	**Reset Min. Max.**	Initializes the Max/Min of Data shown on the right zone. (Available in graph mode only.)
⑦	**Recorded Data Info.**	Show information of saved Data. (File Information, Vehicle Information, Time Information, and Record Mode Information)

1) Change the data item in graph mode using "Item List"



<Figure 17: Change item to display in graph>

①In graph mode, select Function and select "Item List" to be seen as <Figure 17>.

(The item having "*" mark in front of item name in the List is currently shown in graph.)

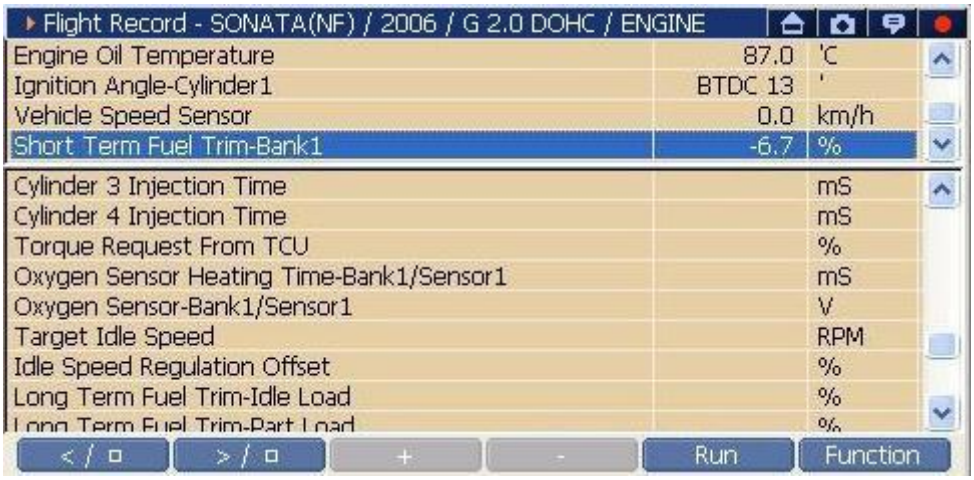
Note:

In graph mode, Maximum 4 items can be selected and shown at one time.

②Select the item in the list you want to deselect which is currently shown in graph by using ▲ ▼ buttons and pressing ENTER button, or using the stylus pen.

③For the item you want to show in graph mode, select it in the list using ▲ ▼ buttons and pressing ENTER button, or using the stylus pen to mark "*" in front of item name.

2) Switching Record Data Output mode using "Text/Graph"

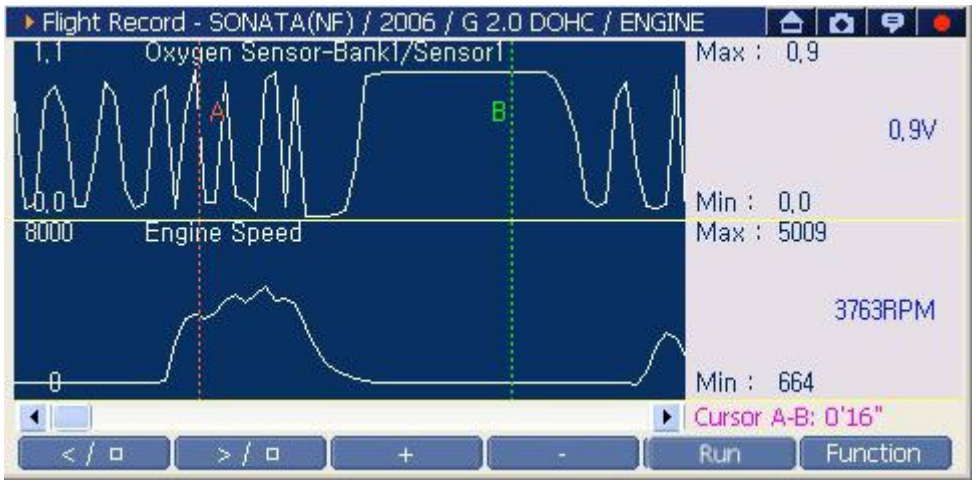


<Figure 18: Change to text mode>

Among the function menu after selecting Function in graph mode, select "Text/Graph", and then the graph mode screen will be changed to the text mode as shown in <Figure 18>.

3) Check the Min/Max using "Two Cursor" function

"Maximum" and "Minimum" value can be checked by using "Two cursor function"



<Figure 19. Data analysis using "Two cursor" function>

Cursor "A"	Red
Cursor "B"	Green

Note:

"Two cursor function is only enabled in graph mode. Convert text mode to graph mode

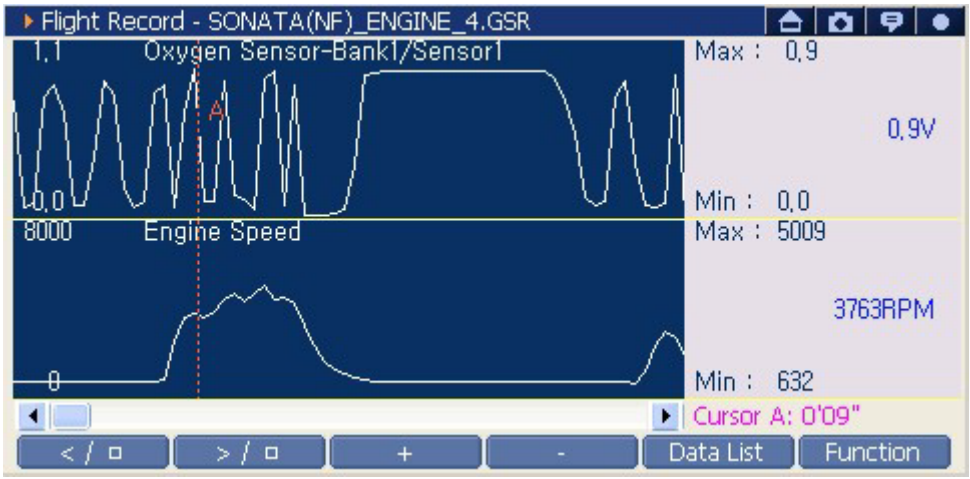
<Repositioning "A" cursor location>

Use Stylus pen or H/W button to reposition cursor "A".

Touch Screen	Use stylus pen to position cursor "A".
Arrow Key	Use , button when cursor "A" is activated

Note:

If cursor "B" is activated, select Function to retrieve list, then select cursor "A" to activate and position cursor "A"



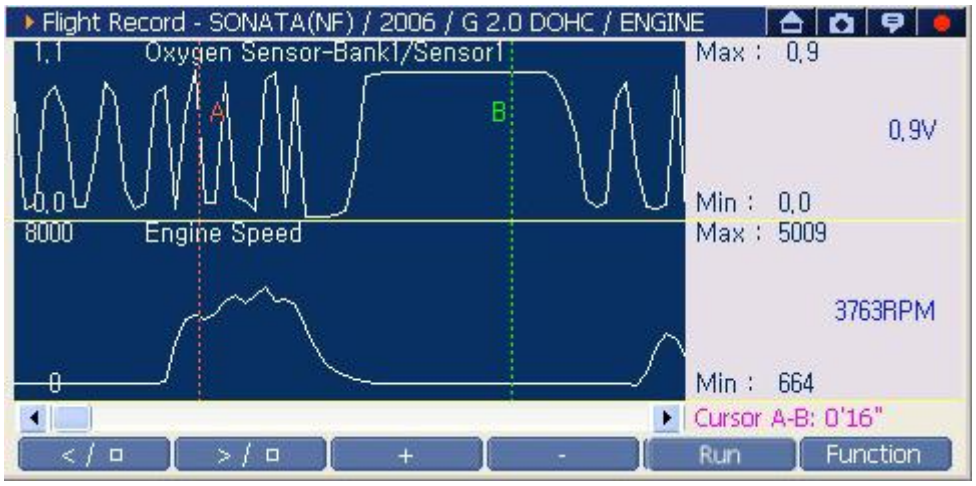
<Figure 20: Positioning Cursor "A" >

<Repositioning "B" cursor location>

① Select Function to retrieve list then select " Two Cursor B"

② Use stylus pen or H/W button to reposition "B" Cursor.

Touch Screen	Use stylus pen to position cursor "A".
Arrow Key	Use , button when cursor "A" is activated



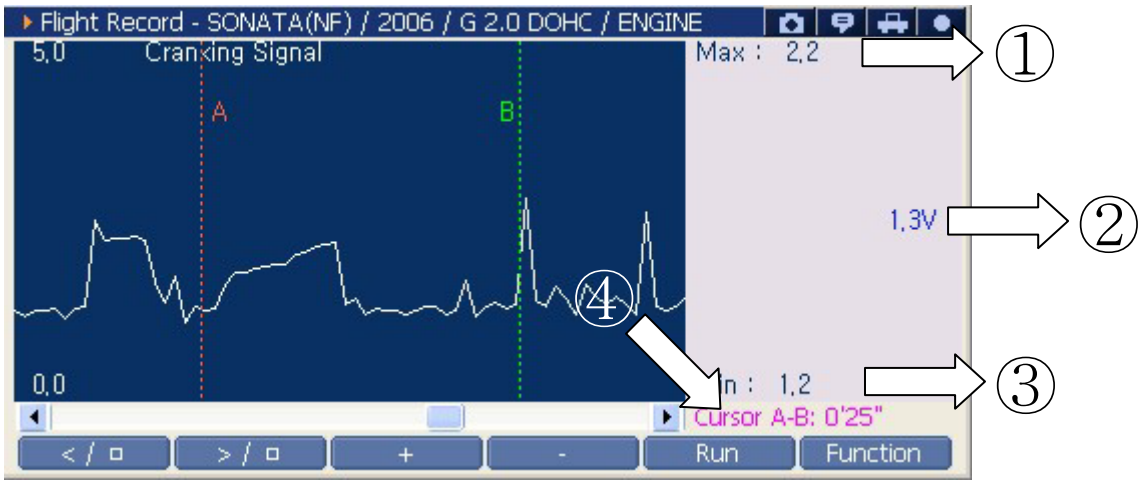
<Figure 21: Repositioning Cursor "B" >

<Deactivating two cursor function>

With cursor "B" activated, select Function , then select "Two cursor B" to deactivate cursor "B".

Note:

The mean of data displayed on the right side section(or screen) under Two Cursor mode.



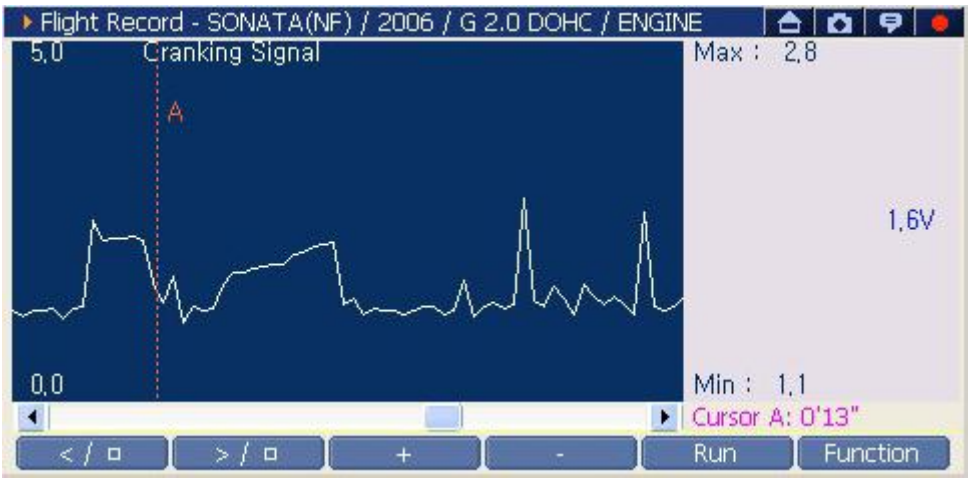
<Figure 22. Data value at two cursor mode>

①	**Max**	Maximum value of Data detected in the region between cursor "A" and cursor "B"
②	**Current Value**	Data value detected at Cursor "A" position
③	**Min**	Minimum value of Data detected in the region between cursor "A" and cursor "B"
④	**Time**	The time differences between Cursor "A" and Cursor "B"

4) Check the Data at Trigger timing using "Go To Trigger"

<Select "Go to Trigger" in graph mode>

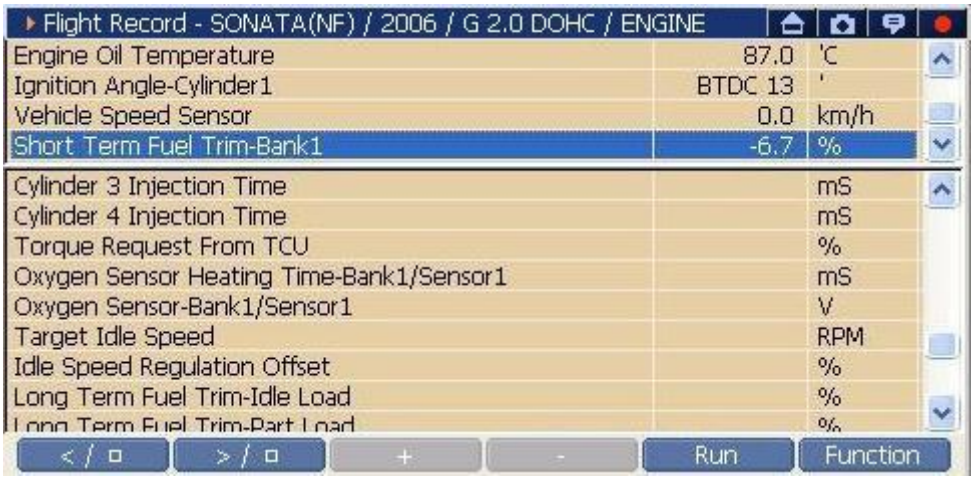
Select Function and select "Go To Trigger" then the Cursor "A" is going to be positioned where user marked using Trigger during recording the data by Flight Record function.



<Figure 23: Select "Go To Trigger" in graph mode>

<Select "Go to Trigger" in text mode>

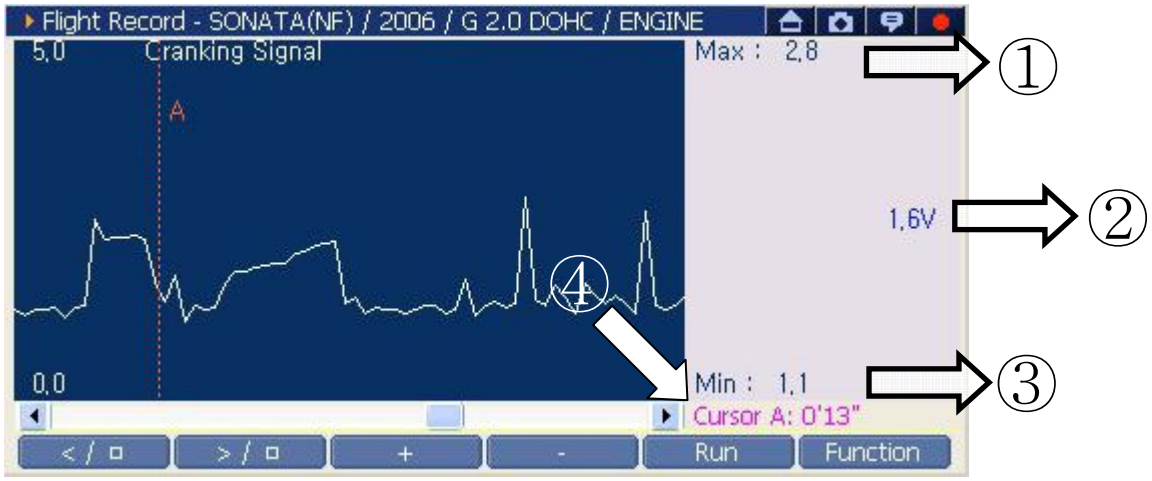
Select the "Go To Trigger" function, then you can check the current data of each recording item when user marked using Trigger.



<Figure 24: Select "Go To Trigger" in text mode>

5) Reset Min/Max

Select Function and select "Reset Min/Max", then all the data shown in the right zone are reset.

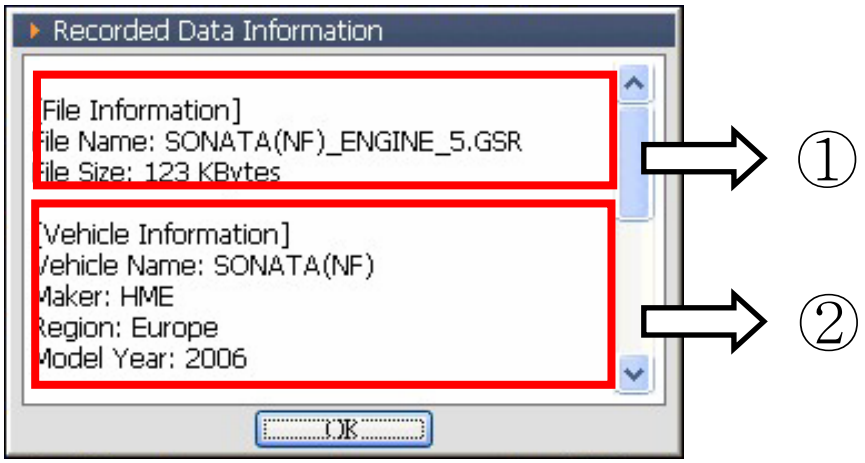


<Figure 25: Reset Min/Max>

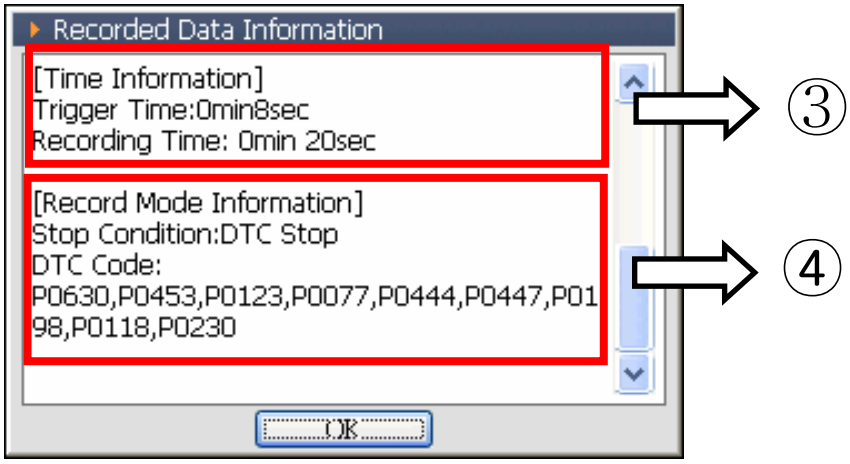
①	**Max**	Maximum value among the data detected at Cursor "A" position
②	**Current**	Data value detected at Cursor "A" position
③	**Min**	Minimum value among the data detected at Cursor "A" position
④	**Time**	The time from recording Data to Cursor "A".

6) Recorded Data Info.

In the function menu shown by selecting Function, select "Recorded Data Info." function, then the information regarding the saved data can be checked.



<Figure 26-1: Pop-up window for Record Data Information>



<Figure 26-2: Pop-up window for Record Data Information >

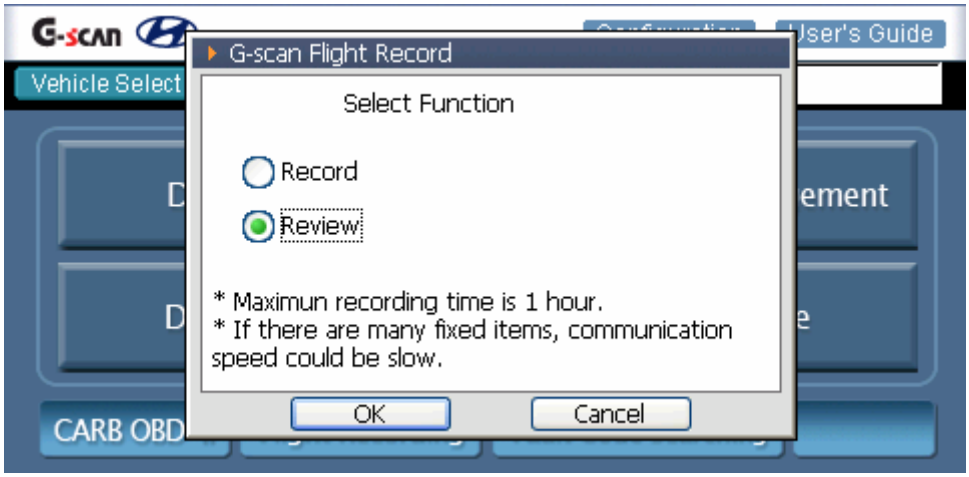
①	Check the saving path and size of the recorded file.
②	Check the vehicle model and year of the recorded Data.
③	Time Information of recorded Data ◆Trigger Time(Marked point of specific timing) ◆Recording Time(Duration of saving data)
④	Record Mode Information of the recorded Data ◆Stop Condition ◆DTC Code

How to use the Data Review function

This is the function to review for analysis of recorded data in Flight Record function.

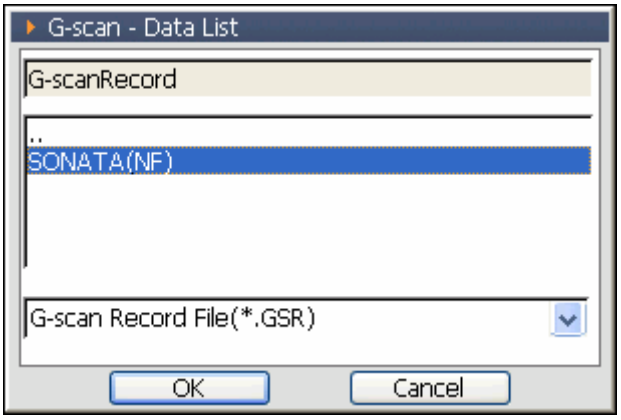
Retrieving of the recorded data

① Select Flight Recording on the main screen and select "Review" in the pop-up window as <Figure 27>. select OK.



<Figure 27: Record/Review Selection Box>

② In the pop-up window as <Figure 28>, select the Flight Record data file which you want to see and select OK.



<Figure 28: Select the Record File in Pop-up Window>

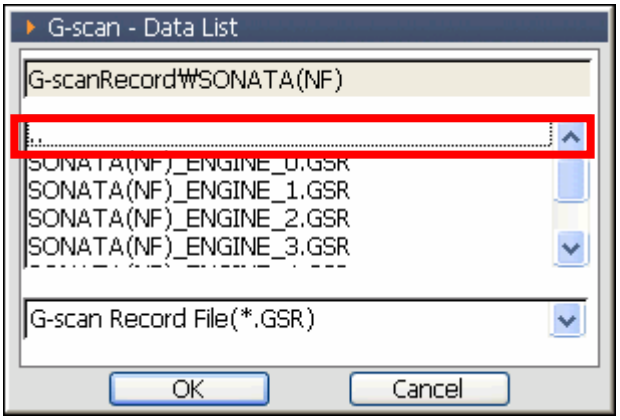
Note:

The Data recorded by Flight Record is saved with the extension of ".GSR".

Finding data directories for individual vehicle

◆Move to upper folder using selecting "••"

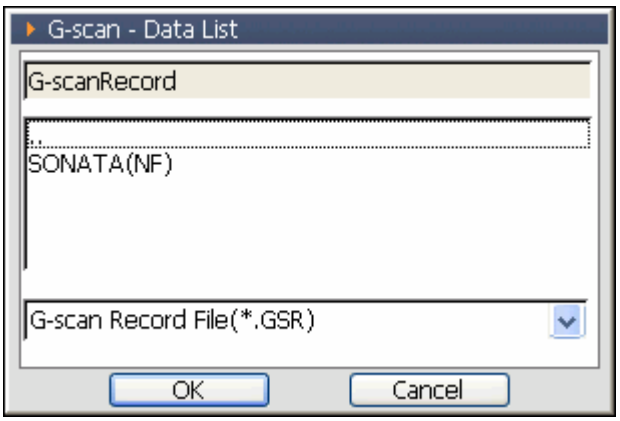
After moving the cursor, select "••" using ▲, ▼ buttons and press ENTER button or using the stylus pen.



<Figure 29-1: Move to Upper Folder>

◆Select the Data

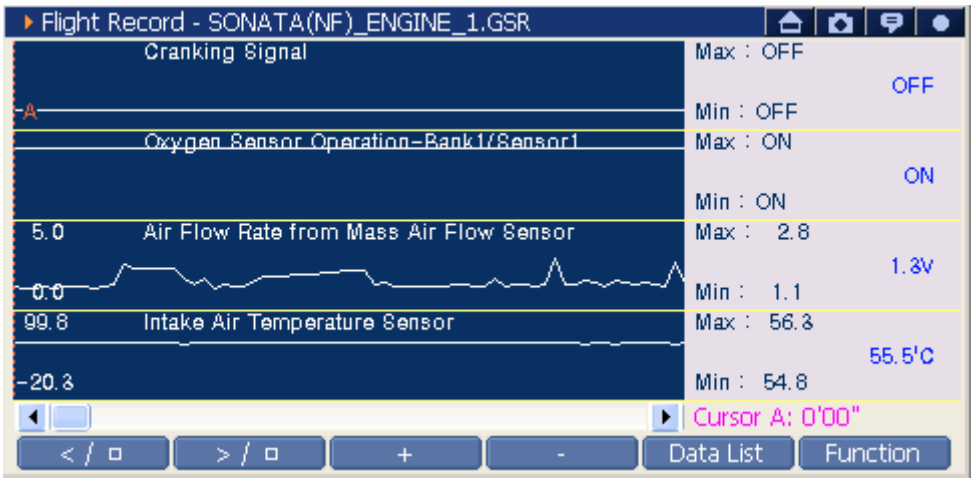
After moving the cursor, select the folder using ▲, ▼ buttons and press ENTER button or using the stylus pen.



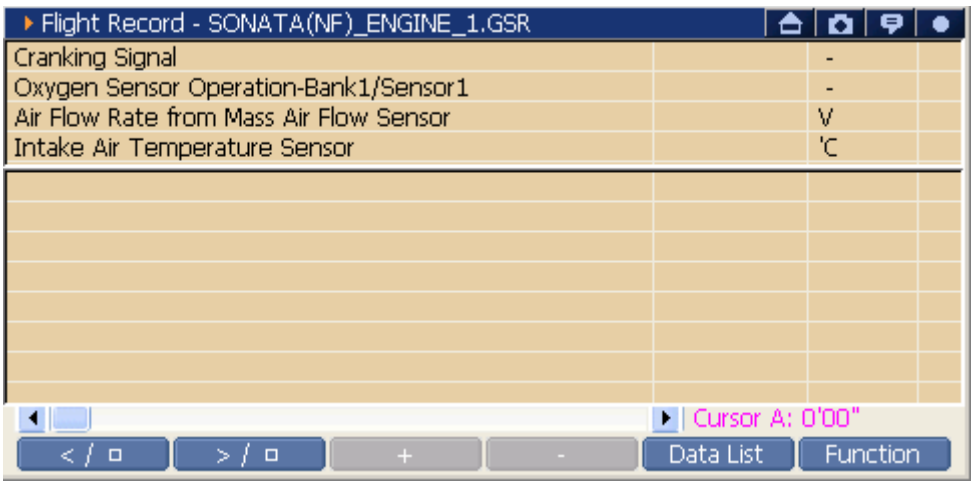
<Figure 29-2: Data saved in folder of each vehicle model>

How to analyze the recorded data

The method for analyzing the recorded data is the same with the method described in the "How to use the function for analyzing the recorded data of Flight Record".



<Figure 30: Data Review in graph mode>



<Figure 31: Data Review in text Mode>

< / □	Play backward or stop.
> / □	Play forward or stop.
+	Scale up the analyzing Data on time axis.
-	Scale down the analyzing Data on time axis.
Data List	Show all the recorded data files of Flight Record and user can open the new file.
Function	Show the Function menu * For details, refer to the "Function Menu of Flight Record Data Analyzing Screen".

PC Utility

PC Utility Installation ---------- A-05-001
How to use PC Utility ---------- A-05-002

PC Utility Installation

PC Utility **Model: A-05-001**

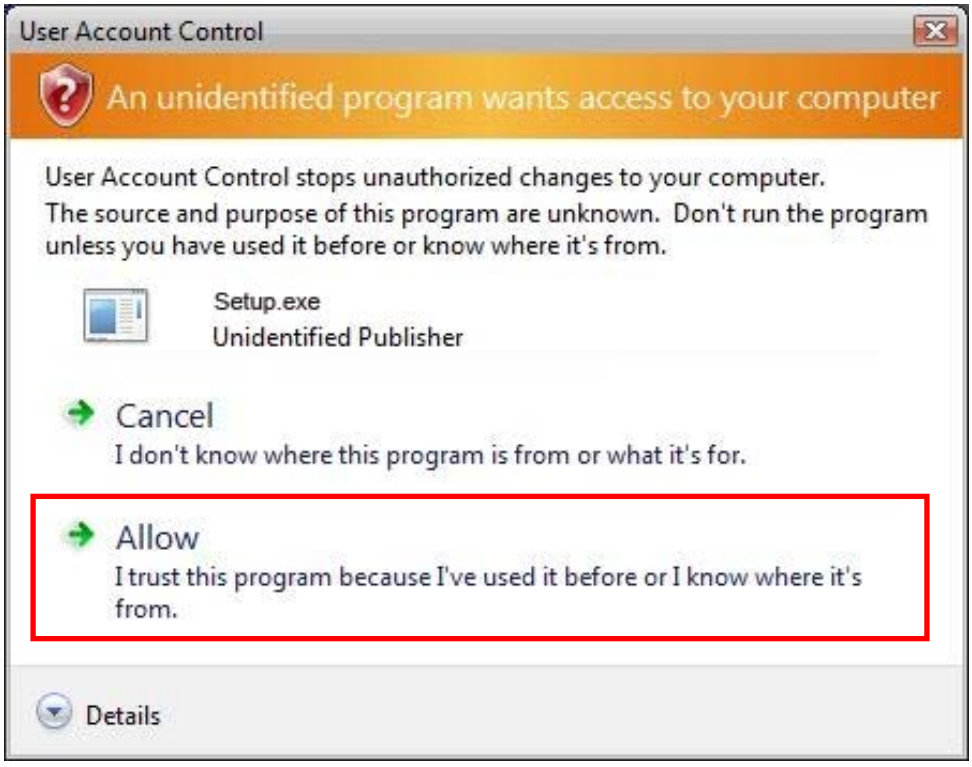
Note:

G-scan PC Utility requires the Microsoft Windows 2000 operating system or later.

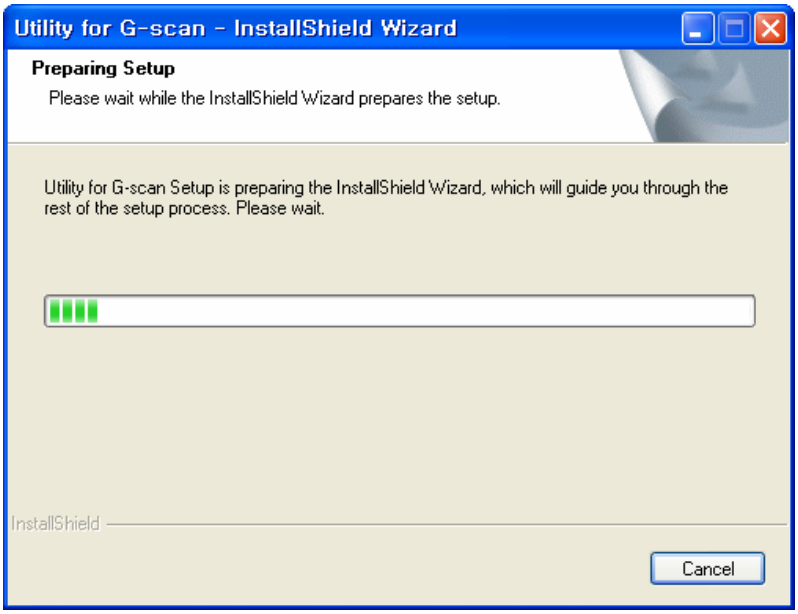
1. Insert G-scan PC Utility Software to the CD ROM.

Notice:

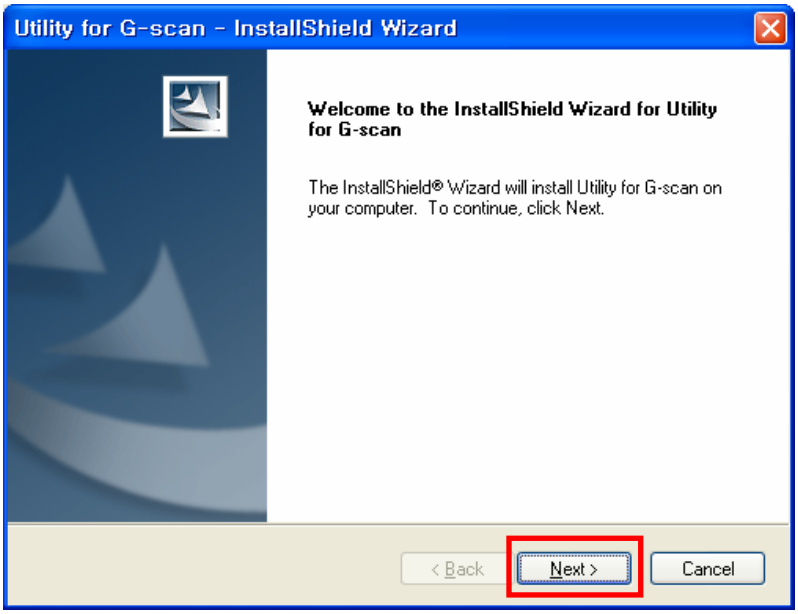
You may see the following dialogue box during installation of PC Utility on PC with Windows Vista, and select "Allow" to start PC Utility Installation.



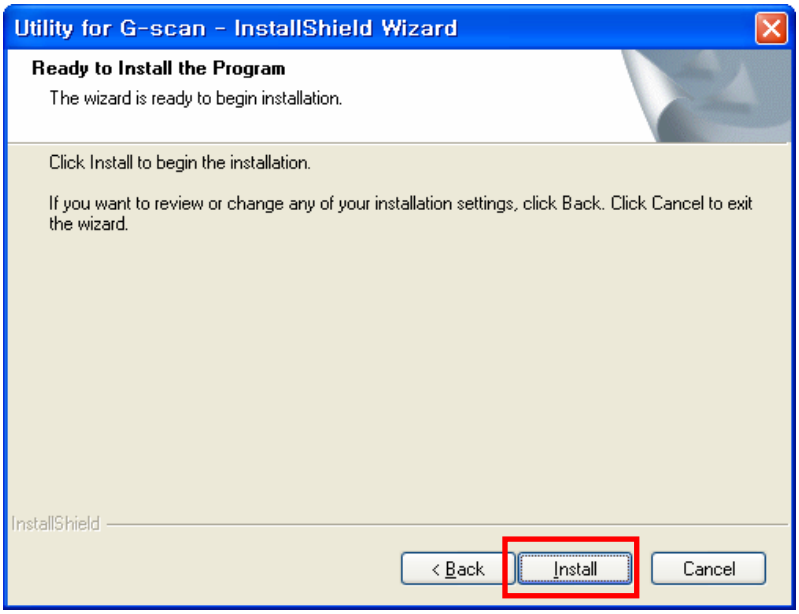
2. InstallShield will start automatically in a few seconds.



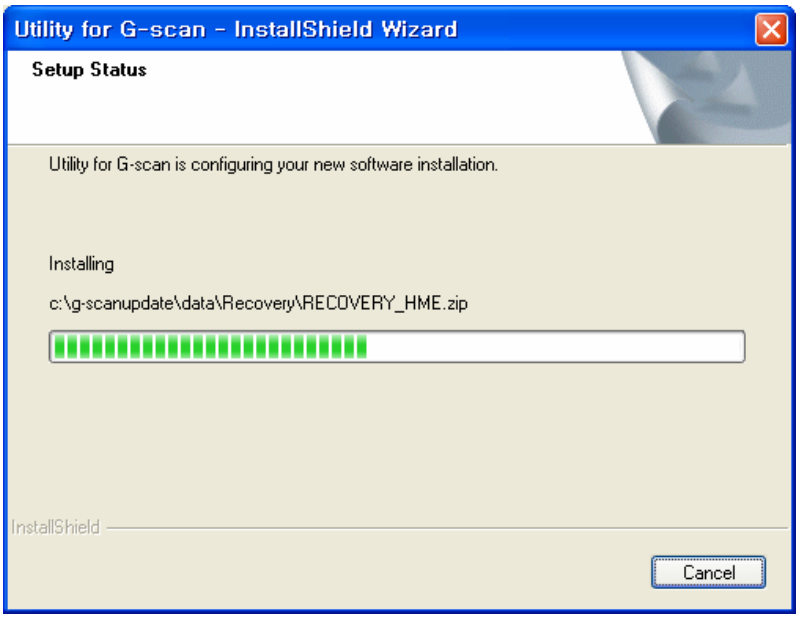
3. Press "Next" button in following dialog.



4. Press "Install" Button in following dialog.

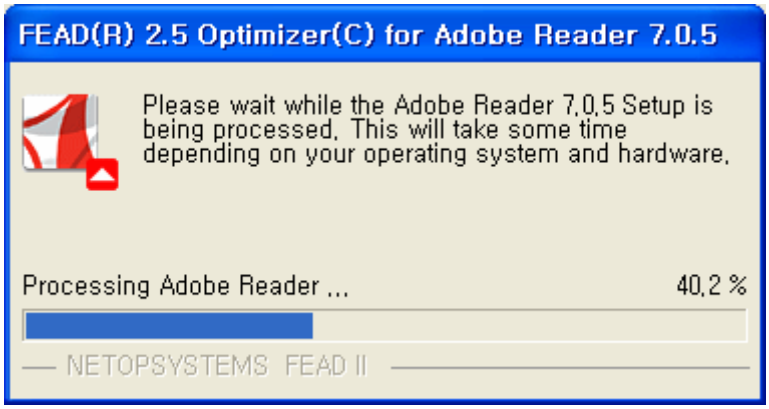


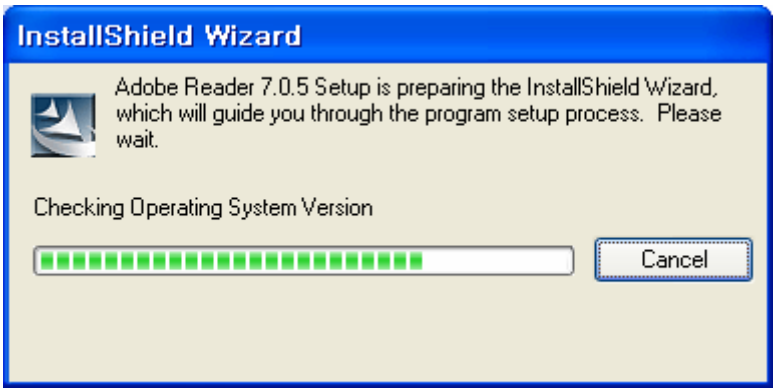
5. Installing PC Utility S/W.



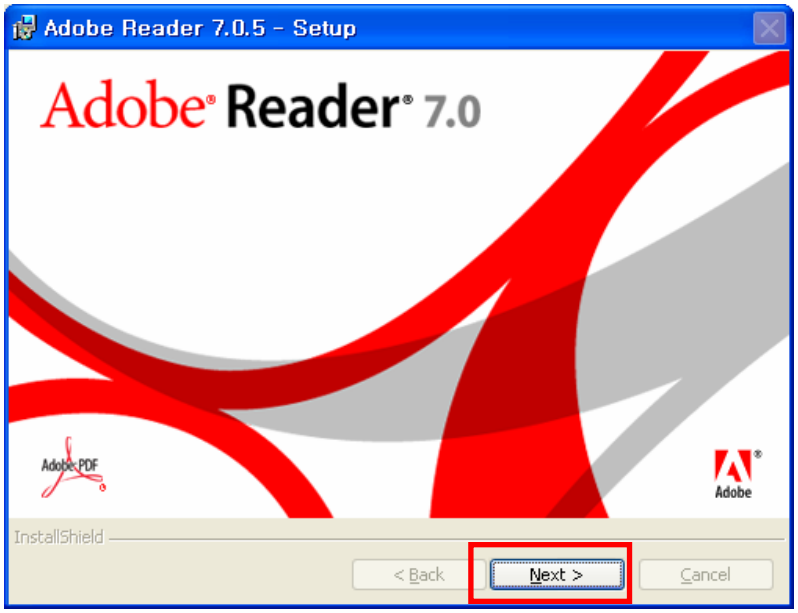
6. Installing G-scan USB driver.

7. After Installing USB driver, Adobe Reader program will be installed automatically.

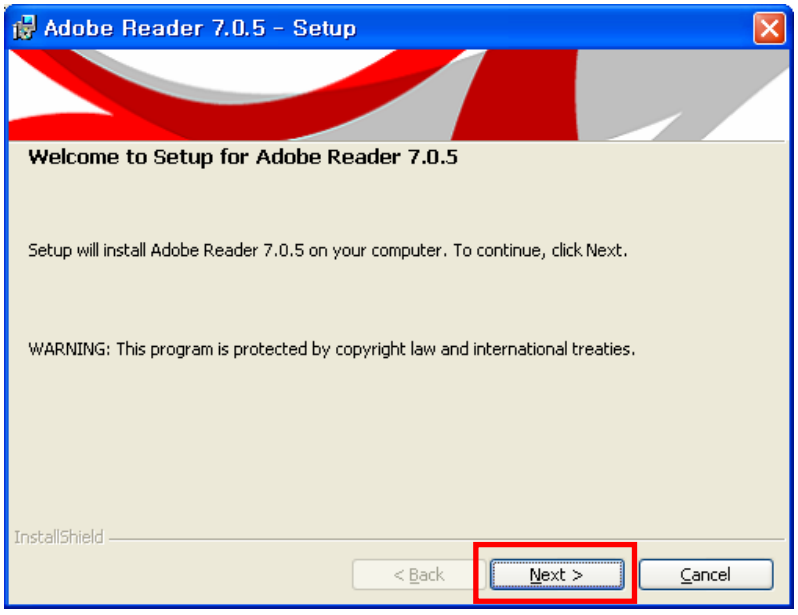




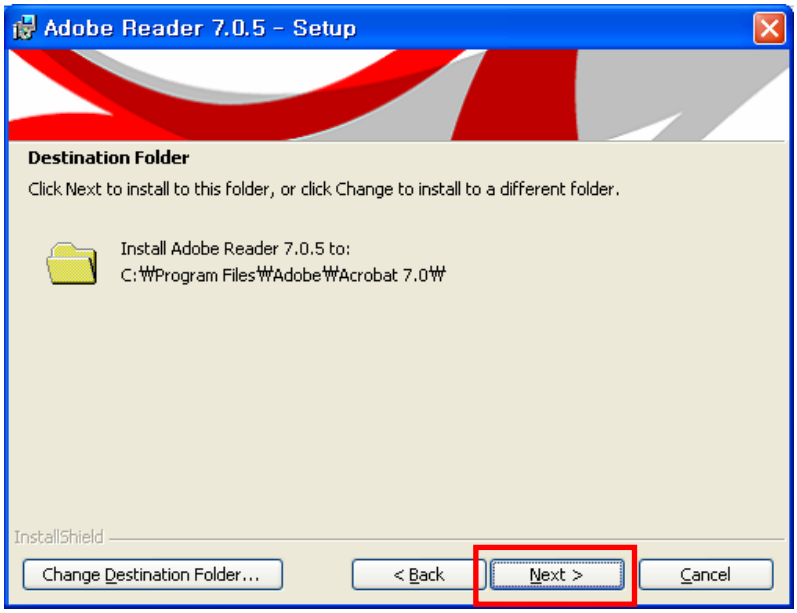
8. Press "Next" button in following dialog.



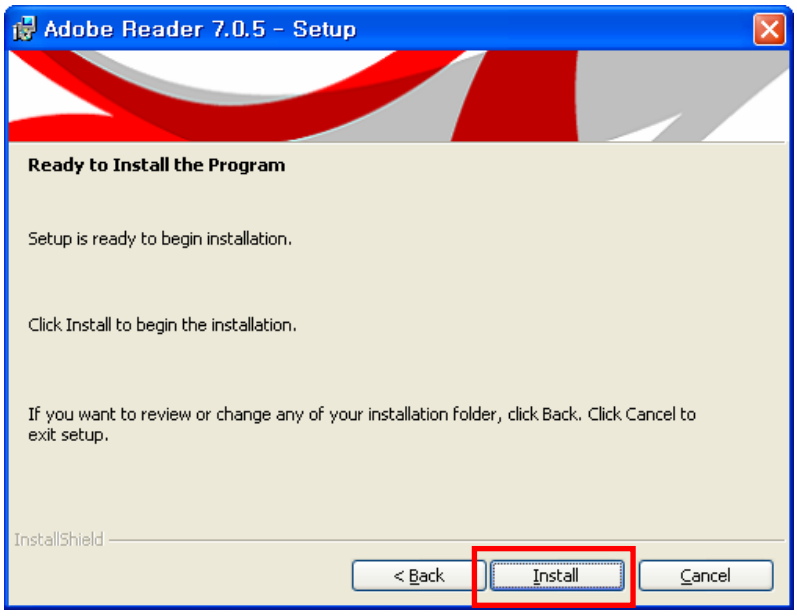
9. Press "Next" button in following dialog.



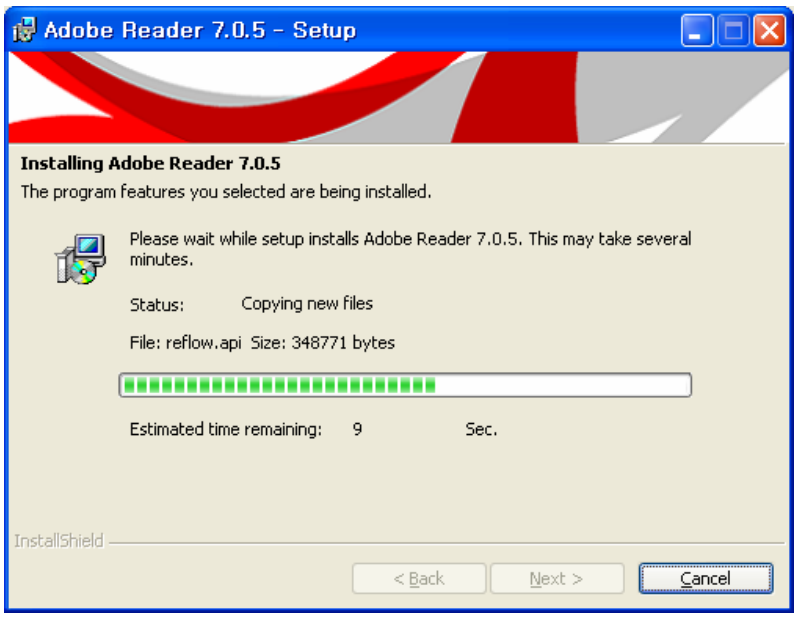
10. Press "Next" button in following dialog.



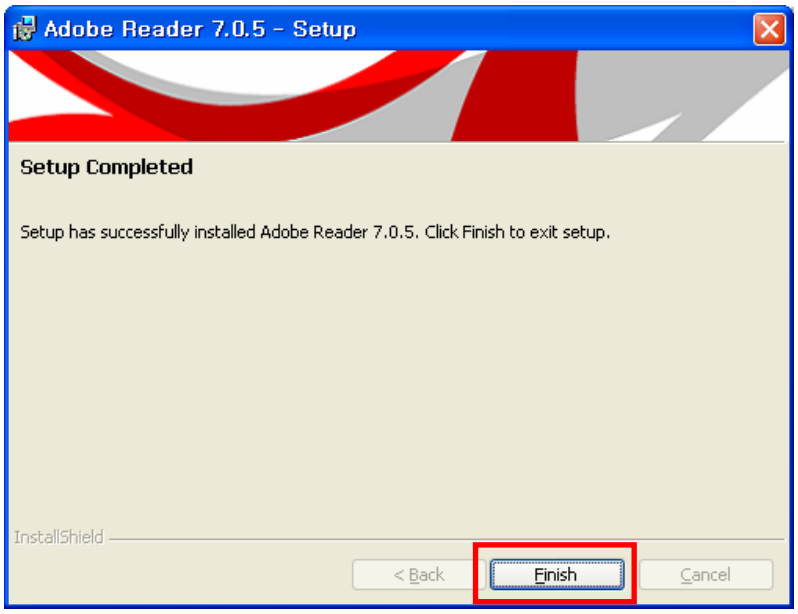
11. Press "Install" button in following dialog.



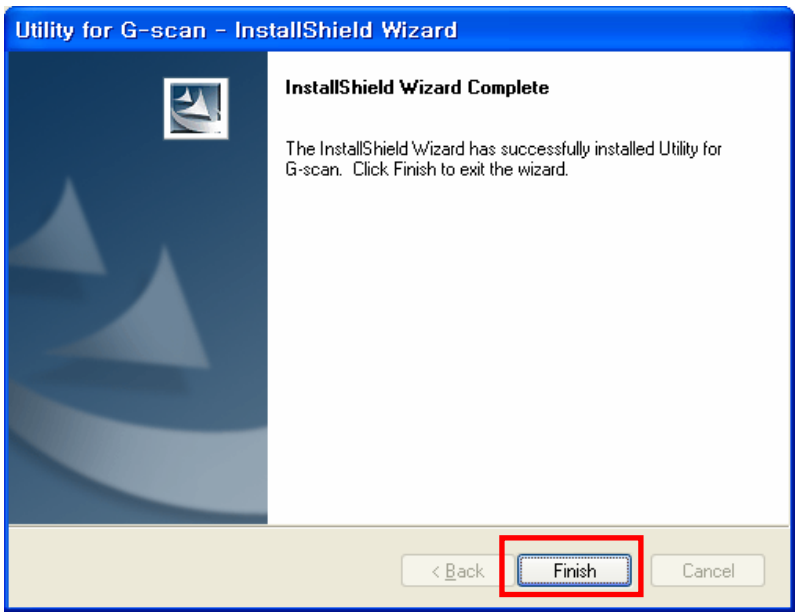
12. Installing "Adobe Reader" S/W.



13. Please press "Finish" button to complete Adobe Reader installation.



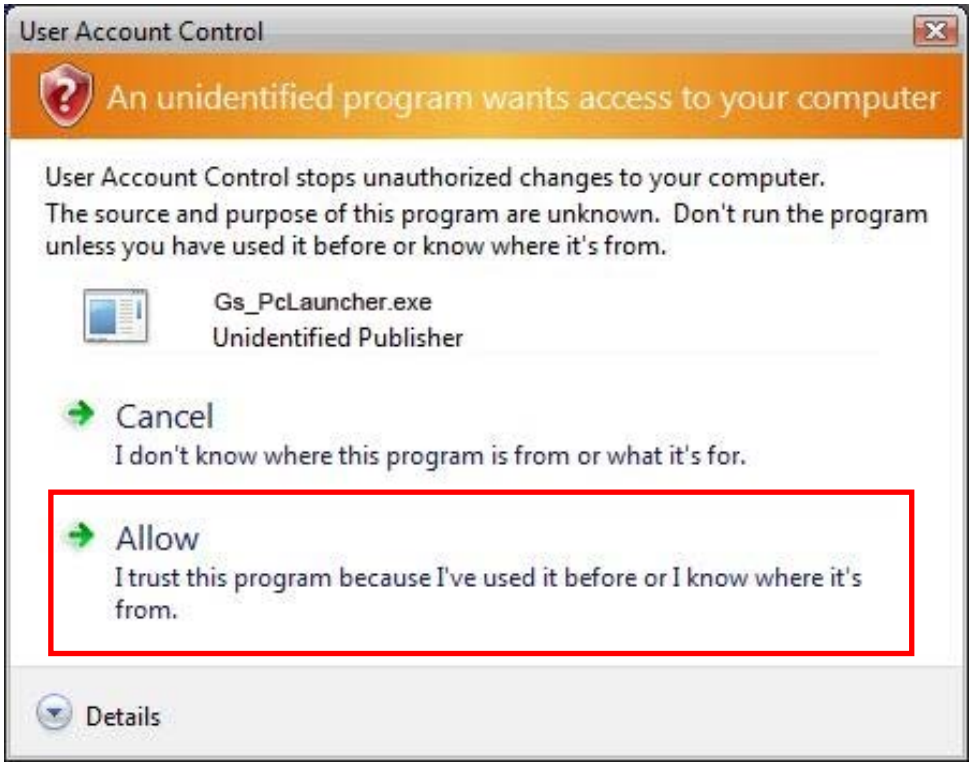
14. "G-scan PC utility" installation is completed. Please press "Finish" button to complete the installation.



15. The icon will be displayed after installation is completed.

Notice:

You may see the following dialogue box when you run PC Utility on PC with Windows Vista, and select "Allow" to start PC Utility.



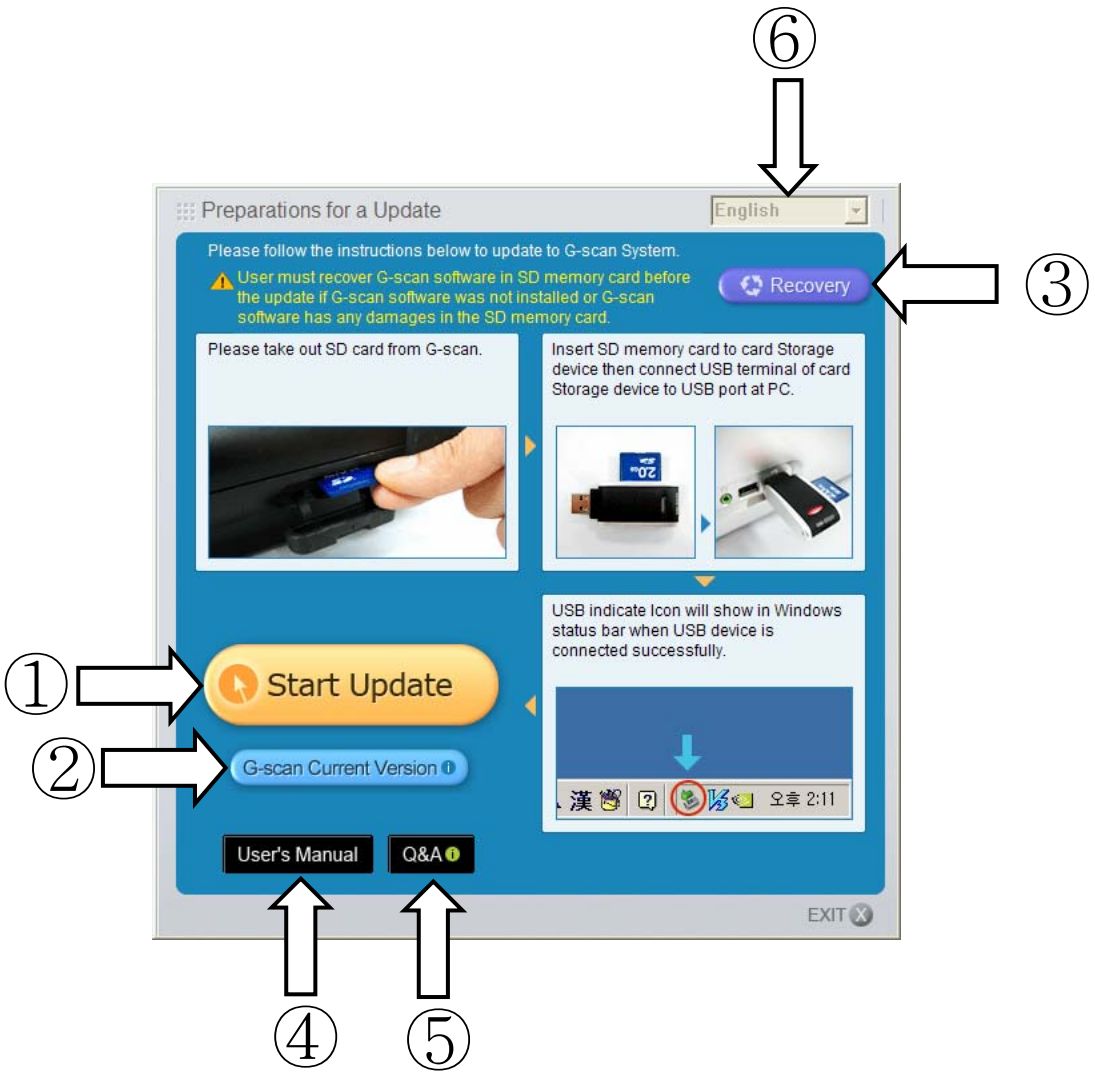
How to use PC Utility

PC Utility **Module: A-05-002**

PC Utility is the specific program for maintaining the Data and S/W of G-scan at the latest version and for recovering the system.

Before using the PC utility program, you should read the manual carefully.

Description for the PC Utility



<Figure 1: PC Utility Main Screen>

①		Updates the Data of G-scan and the O/S saved in SD card.
②		Checks the version of the S/W installed in the SD card and the version of S/W registered in the server.
③		Function for recovering this equipment to initial condition when G-scan S/W has error or a new SD card is used (including format).
④		Offer a function to view the User Manual.
⑤		Use the Q&A board of server.
⑥		Select user's language.

How to use PC Utility

Run the PC Utility

Double click the PC Utility icon on the desktop to run. The main screen of the PC Utility will be shown as in <Figure 2>.

Note:

Your PC should be connected to internet prior to use PC Utility. Otherwise, it is restricted to use full function of the PC Utility.

Note:

The button having ⓘ mark on the PC Utility main screen can be used only when the internet is connected.

<Figure 2: PC Utility Main Screen>

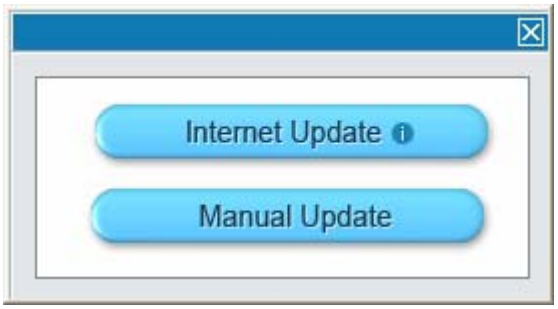
Start Update

Performs the update so that G-scan maintains upto its latest version of O/S and data.

Method of G-scan update

Select

on the main screen of PC utility, pop up windows as <Figure 3> will be shown.



<Figure 3: Choosing the method to update>

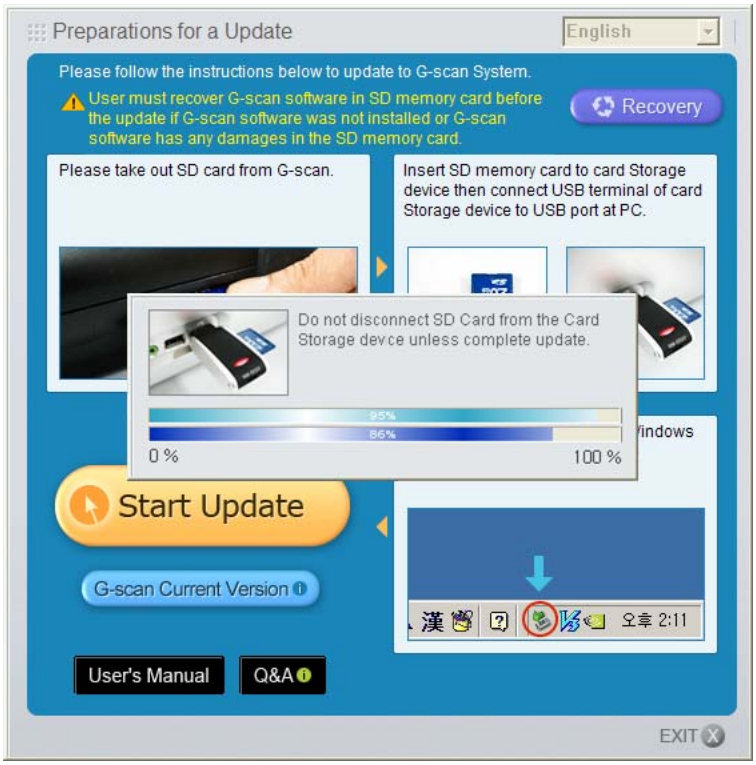
	If PC is connected to the internet, G-scan can be updated by lastest version file that downloaded from update server.
	When internet update is not available, you can update it manually by receiving update file (*.zip) through e-mail or through other channels.

Internet Update

STEP 1 If Internet Update is selected, It will download the update file through the internet to update the data and O/S files to SD card.

Note:

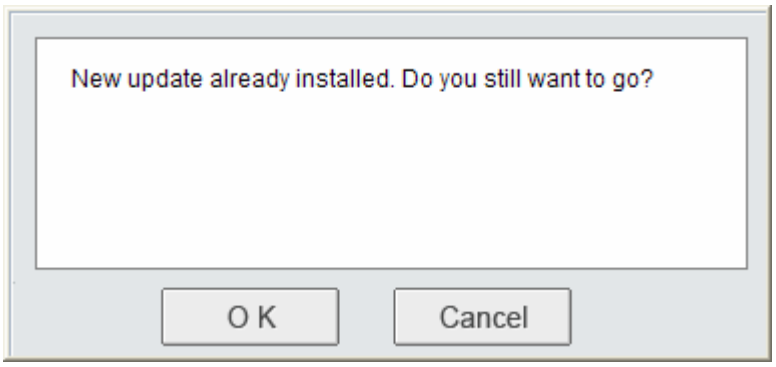
Execution of Start Update is available when SD card is inserted to PC drive through the reader.



<Figure 4: Run the Start Update>

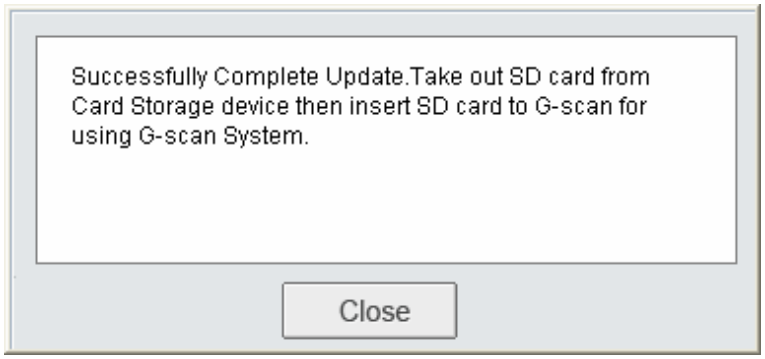
Notice:

When the latest version registered in G-scan Update server is the same with the version registered in the SD card, the follow message will be shown. If you want to reinstall with the same version, select O K.



<Figure 5: Update Reinstall Message>

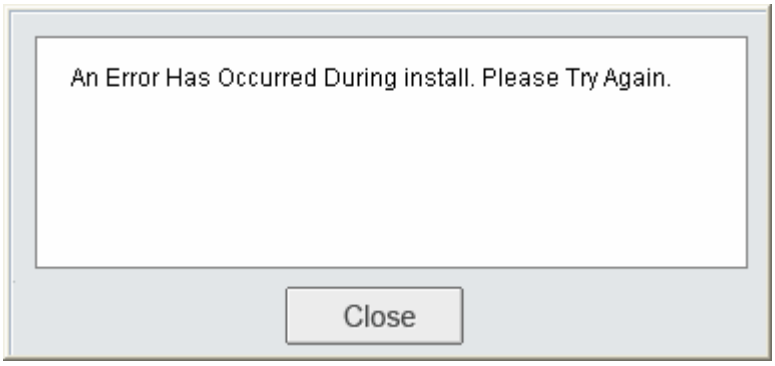
STEP 2 When update file is downloaded, the following message will be shown.



<Figure 6: Upgrade Complete Message>

STEP 3 Press the "Close" button to close the message dialogue. insert the SD card into the memory slot of G-scan.

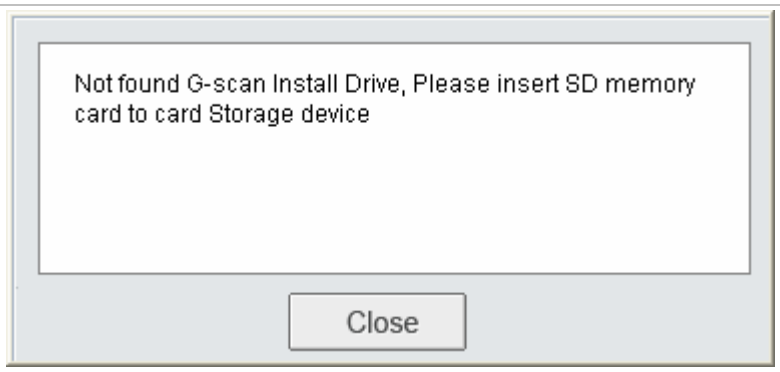
1) Generated errors during updating



<Figure 7: Update Error Message>

This is the message shown when error is occurred during Update. Check if the drive of SD card is found. Run the Update function again.

2) When the target drive for G-scan Update cannot be found



<Figure 8: Update Drive Found Message>

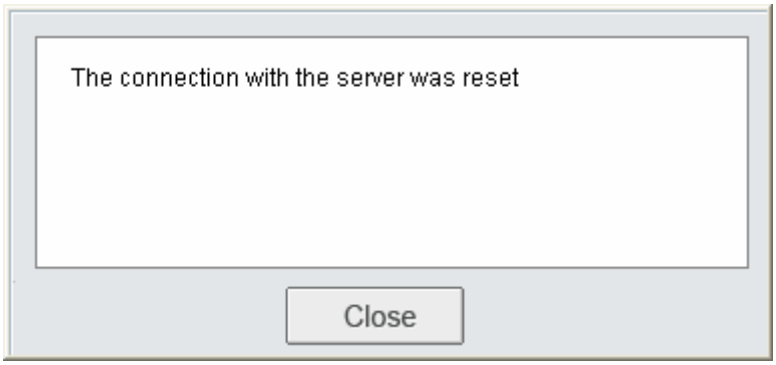
This is the message shown when the drive installed with G-scan S/W cannot be found.

- When the SD card installed with G-scan is not connected to the PC through the Reader

  → Connect the SD card and retry.

- Even the SD card is connected to the PC through the Reader, G-scan SD card is accidentally formatted or because it is a new one

  → Using "Recovery" function, recover the Data and retry.

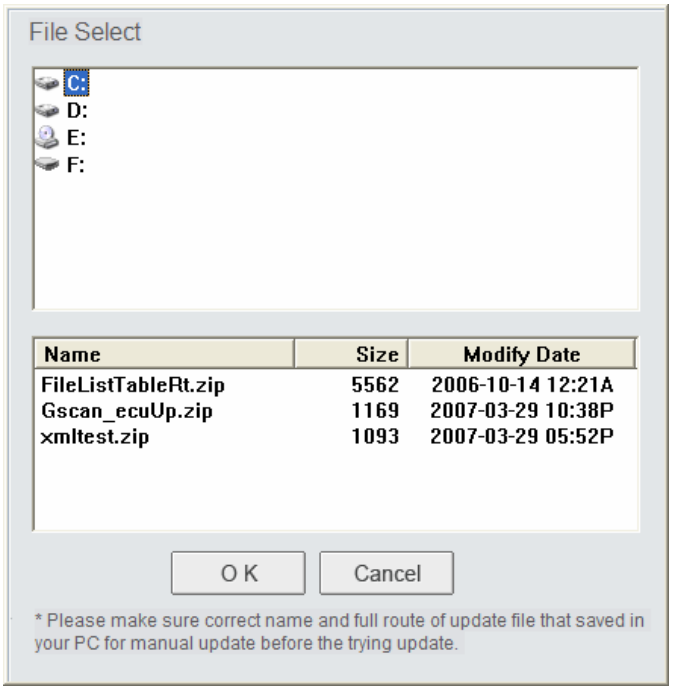
3) Disconnected during proceeding of update
 <Figure 9: Disconnecting with Server during update >
This is the message when PC is disconnected from internet. Check the internet connection of PC and retry.

Manual Update

This is the function for updating when internet update from the server is impossible because the PC is not connected to the internet.

STEP 1 On the PC Utility main screen, select

button, then the file search window will be shown as in <Figure 10>.



<Figure 10: File search window of Manual update>

STEP 2 Select the update file from the drive saving the manual update file using the searching window as in <Figure 10> and press the "OK" button.

STEP 3 After pressing

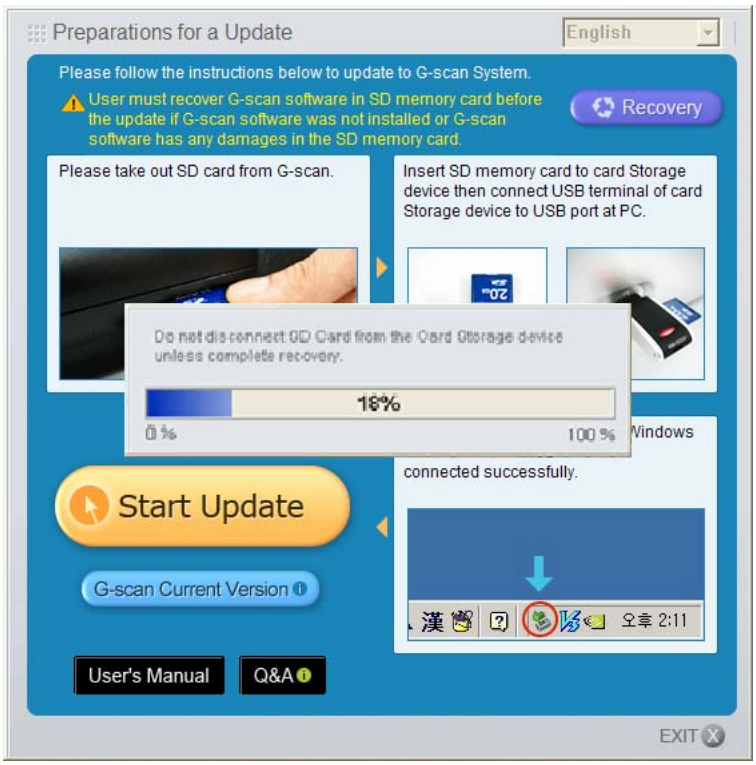
button, repeat same procedure with the

function.

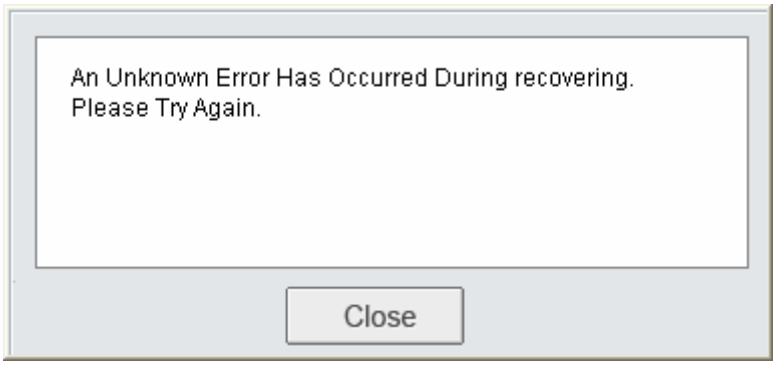
Recovery

STEP 1 On G-scan PC Utility Main Screen, select

, then G-scan Data and O/S files saved in the SD card will be recovered to the initial state as follows.



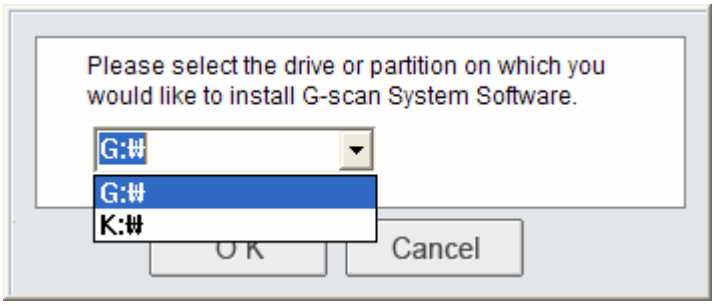
<Figure 11: Run G-scan Recovery>

Unknown Error during Recovery function

This is the message shown when unknown error is occurred during Recovery. Check if the drive of SD card is found. Retry the Recovery function again.

<Figure 12: Error during Recovery>

Notice:

When previous Data of G-scan is not in the SD card by formatting the card or replacing with new one, message as in <Figure 13> will be shown.



<Figure 13: Setup Window for selecting SD card drive of Reader>

After setting up the drive installed with SD card exactly, press the "OK" button.

Caution:

When using the Recovery function, the drive installed with SD card should be set exactly. If a wrong drive is selected, the SD card cannot be recovered.

STEP 2 Data recovered into SD memory is the data version for recovering system suggested in the PC Utility CD. After using the recovery function, use

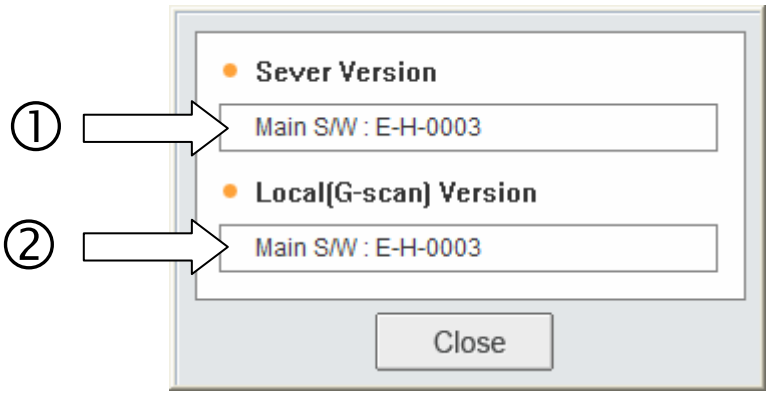
function to update.

Check Version

This is the function for checking the latest version of G-scan S/W in the server and the current version (Local Version) of G-scan S/W installed in SD card.

On G-scan PC Utility main screen, press

button.



<Figure 14: G-scan Version Check Window>

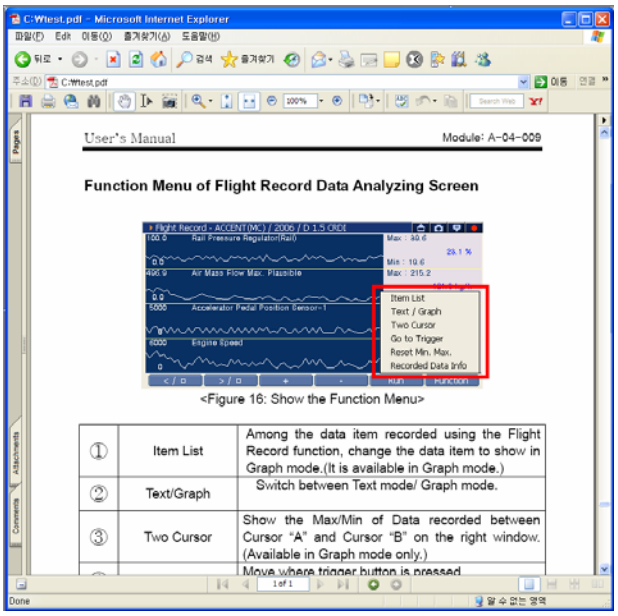
①	The latest version of G-scan S/W registered in the server.
②	The version of the S/W installed in SD card of G-scan.

User's Manual

STEP 1 On the PC Utility main screen, select **User's Manual** button. The User's Manual list is shown as in <Figure 15>.

<Figure 15: List of User's Guide>

STEP 2 Select the list in <Figure 15>, then the details of list can be shown.



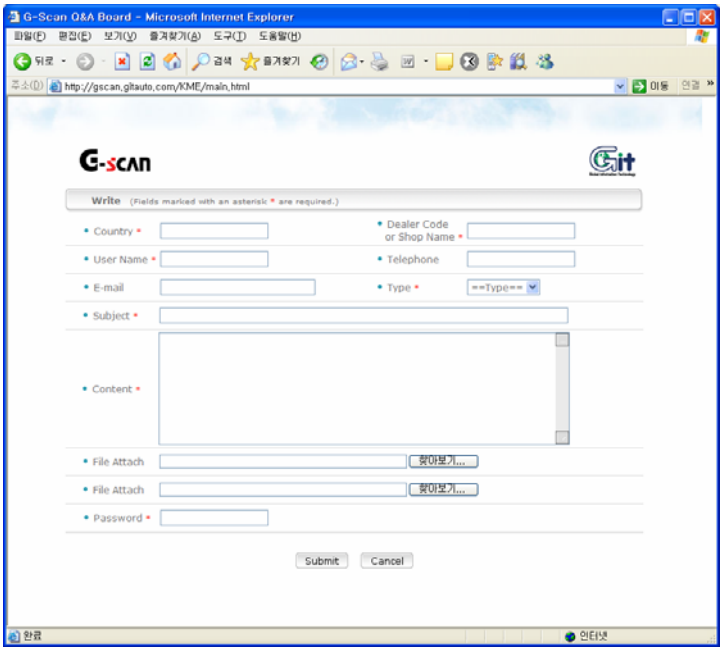
<Figure 16: Show the User's Guide>

Q&A

STEP 1 On the PC Utility main screen, select Q&A button. Through the internet, Q&A page is connected as shown in <Figure 17>.

<Figure 17: Q&A Page>

STEP 2 Select Write in <Figure 17>, then it changes to the window for making comments and questions of user.



<Figure 18: Page for writing the Q&A >

Appendix

Optional Item Installation and Expenditure Exchange A-06-001
O/S Update A-06-002
G-scan and Peripherals Limited Warranty A-06-003
Disposal of Old Electrical and Electronic Equipment A-06-004

Optional Item Installation and Expenditure Exchange

Appendix **Module: A-06-001**

The optional item should be installed to G-scan according to the method described in the manual. Otherwise, it may cause defects on the product.

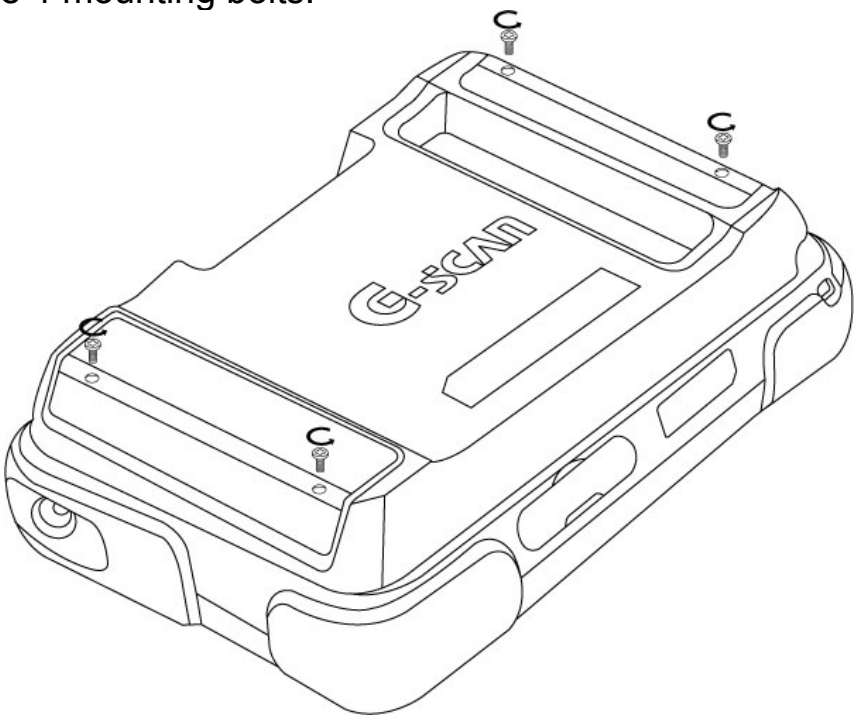
Battery Pack Installation

1) Loosen the Package mounting bolts from the 4 points shown in <Figure 1>.

2) Detach the pack from the main module carefully.
(If excessive force is applied, the product may be damaged.)

3) Attach Battery Pack to the main module.

4) Tighten the 4 mounting bolts.

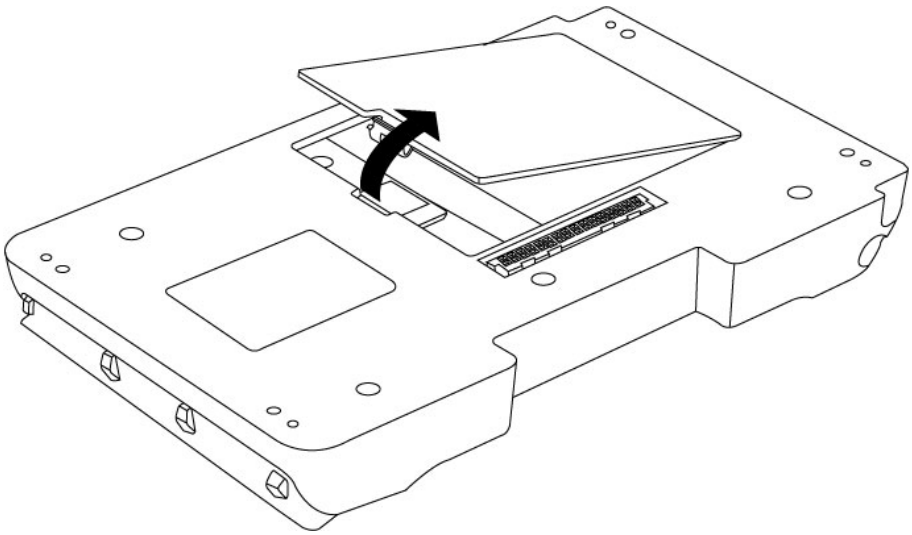


<Figure 1: Position of the Pack Mounting Bolt>

Exchanging the Rechargeable Battery

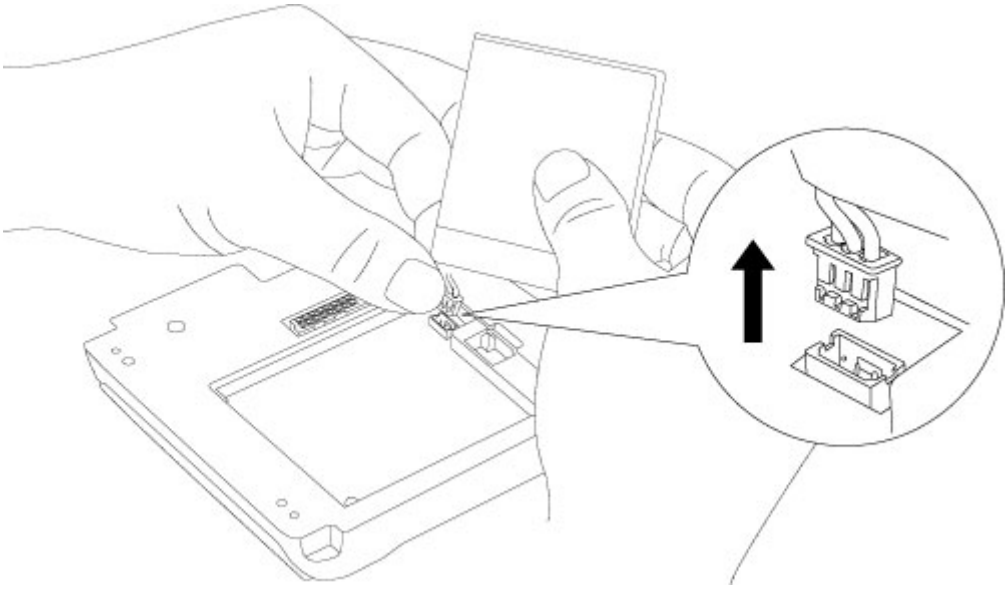
1) For installation and removal of the Pack, refer to the Battery Pack Installation.

2) Open the battery cover of Pack disassembled as shown in <Figure 2>.



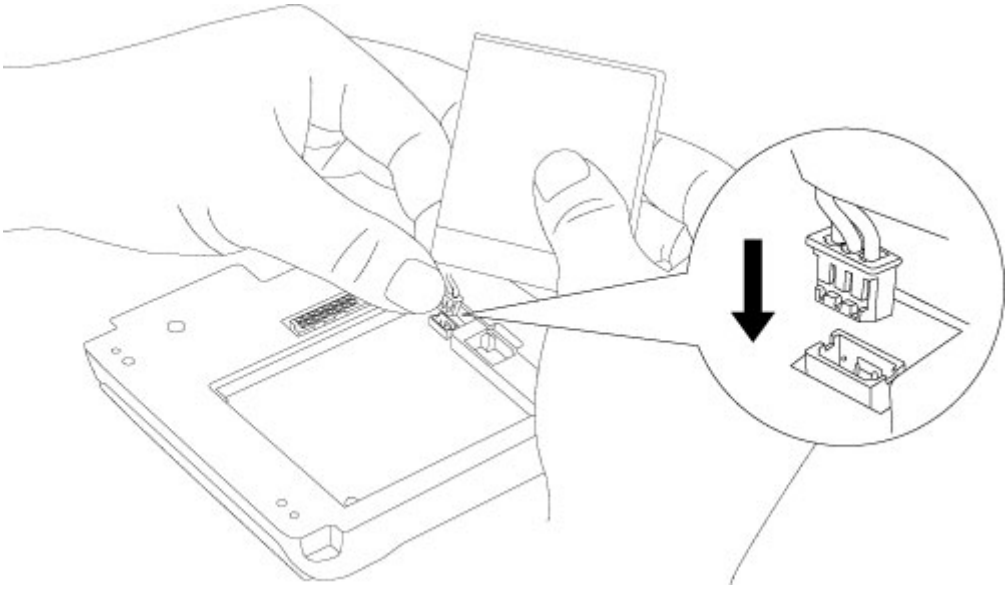
<Figure 2: Open the battery cover>

3) Remove the used battery as shown in <Figure 3>.



<Figure 3: Remove the battery>

4) Check the battery terminal shape of the new rechargeable battery, insert it properly.



<Figure 4: Install the New battery>

5) Locate the new rechargeable battery into the case correctly.

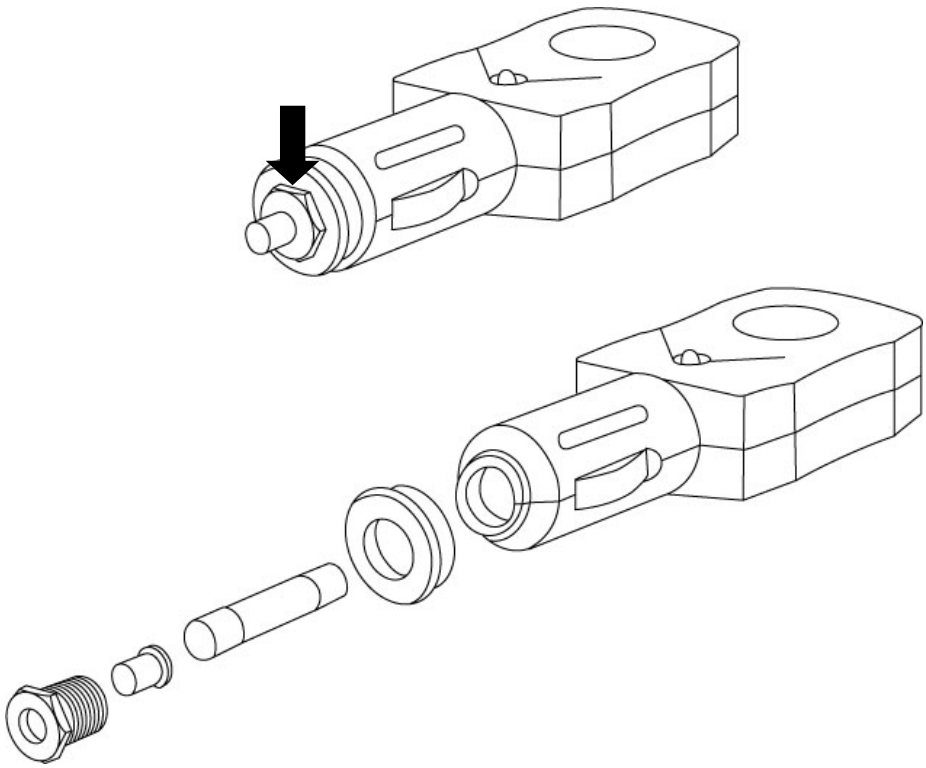
6) Close the battery cover and attach the pack according to the manual.

Caution

- Be careful of the connector direction not to change the polarity of the rechargeable battery.
- After installing the connector, be careful that the battery wiring is not damage by the battery cover.
- After the rechargeable battery cover is closed completely, the Pack should be mounted on the body module.

Exchanging the Cigar-Cable Fuse

1) Turning the portion marked in the <Figure 5> to the counter clockwise direction with the 10mm Hexagonal wrench, it is disassembled as shown in <Figure 5>.



<Figure 5: Disassemble the Cable – Cigar>

2) After exchanging the fuse (250V, 4A), assemble it in reversed order of disassemble.

O/S Update

Appendix **Module: A-06-002**

This is the chapter for how to update the O/S which are the basic system for operating this equipment.

O/S Update

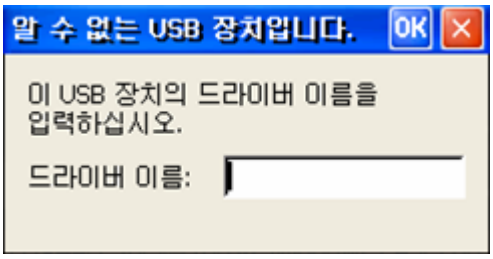
STEP 1 With SD card installed, press the F3 & F4 buttons at the same time and turn on the power.

O/S Update Conditions

- Supply the electric power using the AC/DC adapter.
- The O/S update file should be included in the data loaded in the SD card.
- The version of current G-scan and that of the O/S update file saved in SD card should be different.
- Proceed O/S update with all peripherals removed at option port(USB).

◈ **Error Massage:**

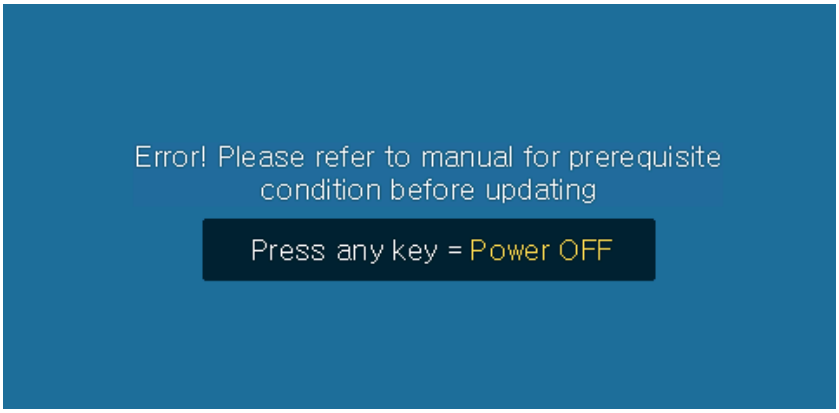
- When the condition is not satisfied.



<Figure 1: Message shown at peripherals attached to USB port while O/S updating>

Dialogue <Figure 1> will be shown if O/S update is prompted with peripherals attached at option port(USB).

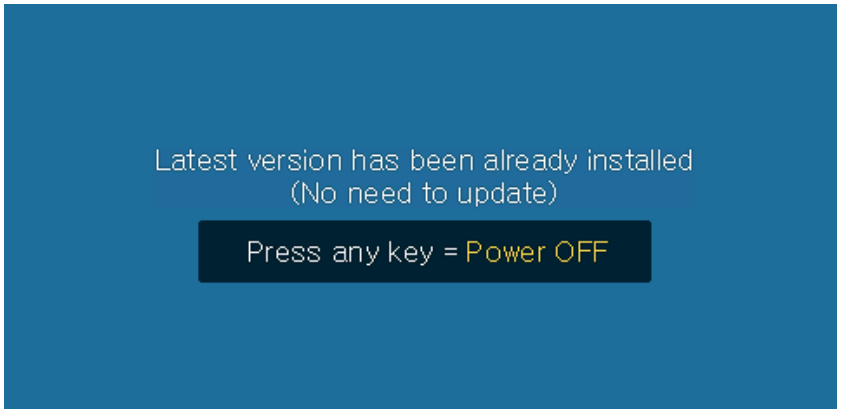
Reboot G-scan then try again.



<Figure 2: Message for confirming the O/S update condition >

It is the message when the condition for updating the O/S is not satisfied. Please check the data upgrade condition of SD card and the connection of the AC/DC power adapter.

◆ When the O/S version of main module is the same with that of the update file saved in SD card



<Figure 3: When current version is the latest version>

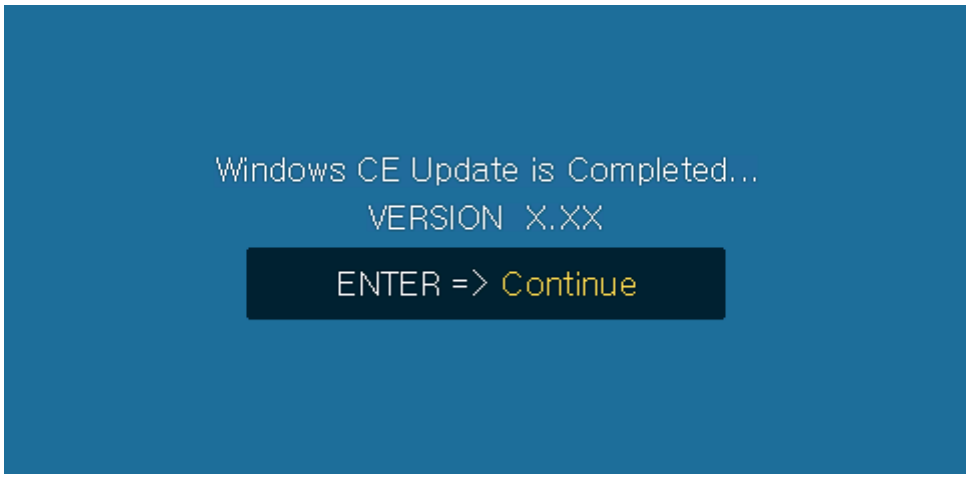
When this message pop-up is shown, press any key to turn OFF the G-scan automatically. As the current version is the latest one, use the equipment after booting normally.

STEP 2

When the screen as in <Figure 4> is shown, press the "Enter" button. (Pressing "ESC" button, the power will be OFF automatically.)

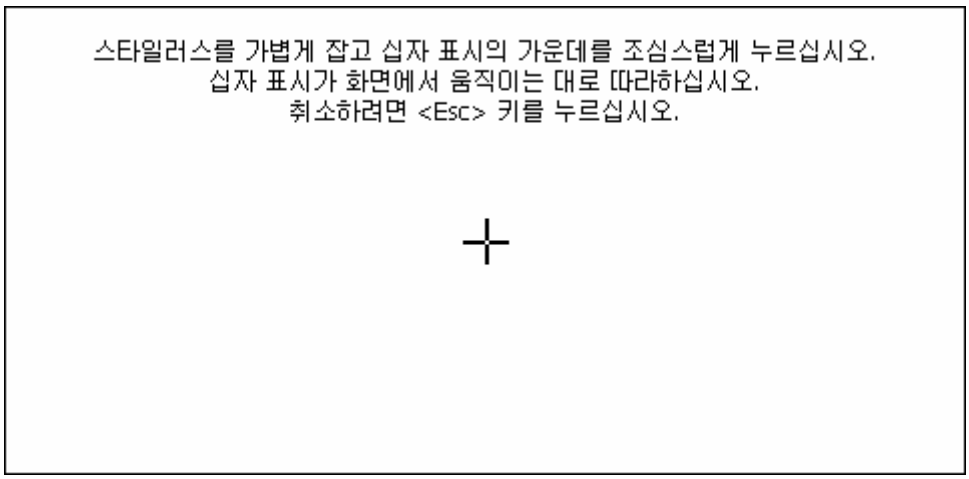
<Figure 4: Screen for confirming the O/S update>

STEP 3 After completing the O/S update, the pop-up window as in <Figure 5> will be shown.



<Figure 5: Screen for completing the O/S update>

STEP 4	According to the update completing message as in <Figure 5>, press "Enter" button, and it is changed to G-scan touch screen calibration screen.



<Figure 6: Touch Screen Calibration Screen>

Note: Korean sentence in the box means.

Carefully press and briefly hold stylus on the center of the target.

Repeat as the target moves around the screen.

Since above screen comes right after OS updating it says in Korean as default.

After OS update, language should be configured again.

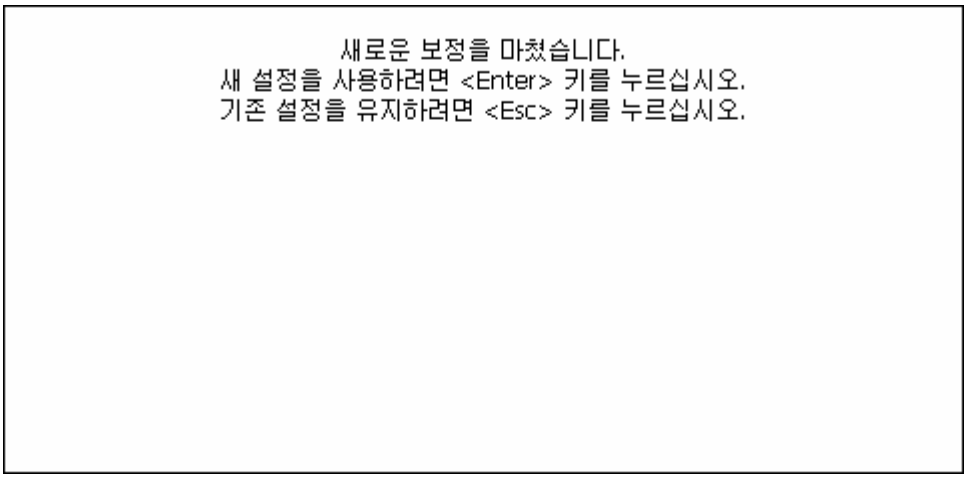
STEP 5 Select the center of (+) shown on the screen as in above screen using the stylus pen.

Note:

Totally 5 positions are shown. Select the centers of all 5 (+) marks.

STEP 6 After selecting all centers of 5 (+) marks, the message as in <Figure 7> will be shown.

To save the new setup, select ENTER button. To keep the previous setup, press ESC.



<Figure 7: Completing the Touch Screen Calibration >

Note: Korean sentence in the box means.

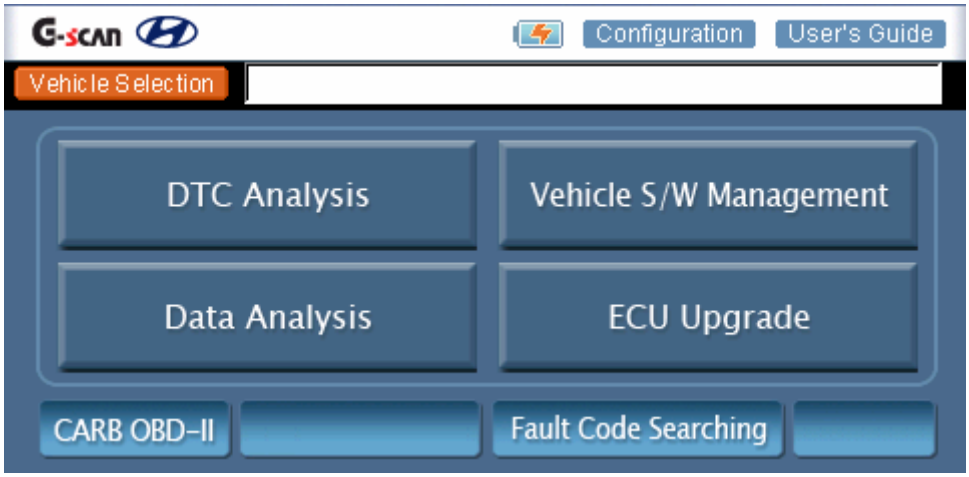
New calibration setting have been measured.

Press the Enter Key to accept the new settings.

Press the Esc Key to keep the old settings.

After OS update, language should be configured again.

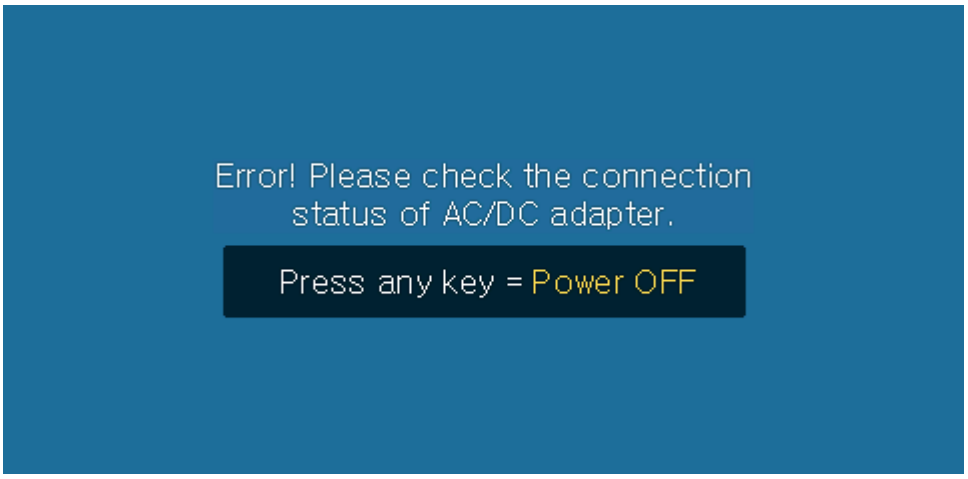
STEP 7	Main screen will appear automatically after O/S update is completed.



<Figure 8: Main screen will appear after O/S update >

◈ **Error Message:**

- When the external power is not connected

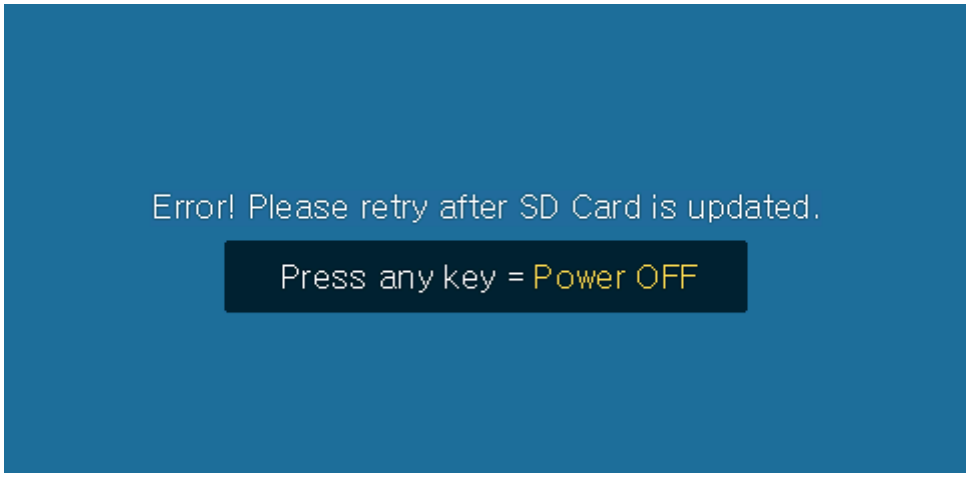


<Figure 9: When external power is not connected >

When the error message pop-up is shown, press Any Key, then the power of main module will be turned OFF automatically.

After connection the external power using AC/DC adapter, retry previous steps.

◆ When the O/S update file saved in the SD card has an error



<Figure 10: When update file is not stored in SD Card >

① When this error message pop-up is shown, press any key to turn OFF the power.

② Using the PC utility, update the O/S data saved in the SD card.

③ Retry the O/S update procedure.

Note:

When the O/S update is proceeded without inserting the SD card installed into G-scan, the power is automatically turned OFF.

G-scan and Peripherals Limited Warranty

Appendix **Module: A-06-003**

Providing that this product has been installed and used as instructed in the operation manual, Global Information Technology (referred to as "GIT") will repair G-scan module (main body other than software, which is covered by a separate warranty) with new or rebuilt parts, free of charge for three (3) years from the date of original purchase in the event of a defect in materials or workmanship. This warranty excludes all other options and accessories, which are covered for a period of one (1) year from the date of original purchase.

This warranty is extended solely to the original purchaser. A purchase receipt or other proof of evidencing the date of original purchase will be required before warranty service is provided.

This warranty only covers failures due to defects in materials or workmanship, which may occur during normal use. It does not cover damage which occurs in shipment or failures which may be caused by products not supplied by GIT, or failures resulting from alteration, accident, misuse, introduction of liquid material or other foreign matter into the product, abuse, neglect, installation, maladjustment of consumer controls, improper maintenance, modification or service by anyone other than GIT, or damage to be attributable to acts of God.

GIT SHALL NOT BE LIABLE FOR LOSS OF DATA OR OTHER INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OF THIS PRODUCT, OR ARISING OUT OF ANY BREACH OF THIS WARRANTY. ALL EXPRESS AND IMPLIED WARRANTIES, INCLUDING THE WARRANTIES OF

MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE LIMITED TO THE APPLICABLE WARRANTY PERIOD SET FORTH ABOVE.

GIT's entire liability, and your exclusive remedy under this warranty shall be limited to the replacement, of any defective parts or functions in the product, which is returned to GIT's Service Center, together with a copy of the purchase receipt, during the aforementioned warranty period. Anything in the foregoing to the contrary notwithstanding, GIT shall have no obligation for any defects in the product resulting from your storage thereof, or for defects that have been caused by operation of the product other than on the operation manual or in environmental conditions other than those specified by GIT or by alteration, accident, misuse, abuse, neglect, mishandling, misapplication, installation, maladjustment of consumer controls, improper maintenance, modification of damage that is attributable to acts of God.

This limited warranty gives you specific legal rights, and you may also have other rights, which vary from country to country. The laws of Republic Korea, without regard to its conflict-of-laws rules, will govern this Limited Warranty.

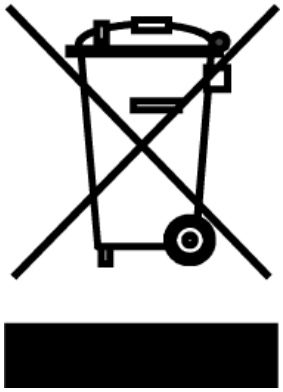
To obtain help or technical Assistance, please contact your product supplier or distributor.

Disposal of Old Electrical and Electronic Equipment

Appendix **Module: A-06-004**

WEEE (Waste Electrical and Electronic Equipment) symbol shown in [Figure 1] is indicated on the back of G-scan main module

Please follow the regulation guide for disposal of Waste Electrical and Electronic Equipment.



<Figure 1: WEEE Symbol>

Disposal of Old Electrical & Electronic Equipment (Applicable in the European Union and other European countries with separate collection systems)

This symbol on the product or on its packaging indicates that this product shall not be treated as household waste. Instead it shall be handed over to the applicable collection point for the recycling of electrical and electronic equipment. By ensuring this product is disposed of correctly, you will help prevent potential negative consequences for the environment and human health, which could otherwise be caused by Inappropriate waste handling of this product. The recycling of materials will help to conserve natural resources. For more detailed information about recycling of this product, please contact your local city office, your household waste disposal service or the shop where you purchased the product.