Hardware

Ver. 07. 06. 2006

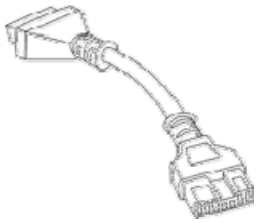
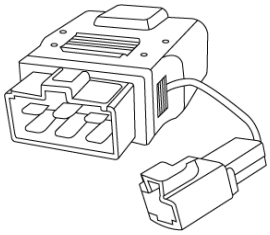
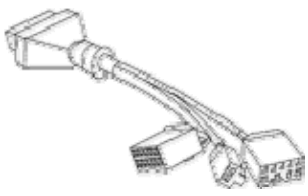
Components of GDS system

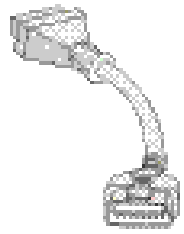
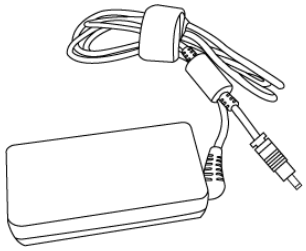
GDS Hardware Components

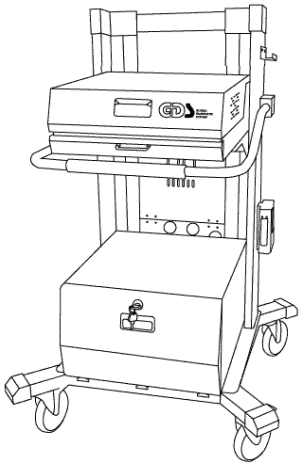
Part name	Part number	Description	Qty.
User's Manual 	GHDM-021400	User manual with introduction and instructions for GDS System.	1
Recovery DVD 	Recovery Version (GHDM-121211)	Recovery DVD for running the GDS This DVD is used to perform a full system recovery. When the Information Terminal is changed, recovery DVD part number could be changed.	1
	Install Version (GHDM – 1212GA)	Installation DVD for running the GDS. User's Information Terminal has to have Window XP Pro version installed. Therefore Information Terminal has to be recovered with supplied OS before installing GDS program with this DVD.	1
GDS Software Master Language Pack 	GHDM – 121231	This Language Pack includes Shop Manual, ETM and DTC Guide in German, French and Spanish. (Supported language can be added) Please install this Master Language Pack if it's NECESSARY.	1

Part name	Part number	Description	Qty.
Carrying Case 	GHDM – 011200 (Option Item)	Carrying Case for keeping or moving the VCI module, VMI module, and Cables,	1
Assy.-VCI module 	GHDM - 210000	VCI module for scan-tool functions and ECU upgrade, and Flight Recording.	1
Assy.-Trigger module 	GHDM - 220000	The trigger module is used to manage the data during the flight record mode in the VCI module, it can also be used as a DC power supply for the VCI module. Use a **250V, 2A Fuse** with this assembly.	1
Cable-Mini USB 	GHDM – 360000	Cable for communication between VCI and Information Terminal. Length 3.5m.	1

Part name	Part number	Description	Qty.
Cable-DLC [26pin -16pin] 	GHDM – 241000	DLC main cable for communication between VCI module and (16pin) OBD-II diagnosis connector on vehicle. Length 2.0m.	1
Adapter [16pin-20pin(R)] 	GHDM - 244000	DLC Adapter cable [16pin to 20pin(R)] for DLC Cable (16-26) and 20-pin diagnosis connector on vehicle. 20pin (R) connector is GRAY in color. Length: 1.5m. This cable is used for ECU Upgrade (Reprogramming) on some Hyundai vehicles.	1
Adapter [16pin-20pin(A)] 	GHDM - 242000	DLC Adapter cable [16pin to 20pin(A)] for connecting between DLC Cable (16-26) and 20-pin diagnosis connector on vehicle. 20pin (A) connector is BLACK in color. Length: 1.5m.	1
Adapter [16pin-20pin(B)] 	GHDM - 243000	DLC Adapter cable [16pin to 20pin(B)] for connecting between DLC Cable (16-26) and 20-pin diagnosis connector on some vehicles. 20pin (B) connector is RED in color. Length: 1.5m.	1

Part name	Part number	Description	Qty.
Cable-DLC [16pin -12pin] 	GHDM – 245000	This adapter is connected between DLC main cable [26pin to 16pin] on the VCI module and 12pin diagnosis connecter on some specific vehicles. Length: 0.2m	1
Adapter [16pin-6pin] 	GHDM - 246000	This adapter is connected between DLC main cable [26pin to 16pin] on the VCI module and 6pin diagnosis connecter on some old vehicles.	1
Cable - Battery Power Extension 	GHDM – 24B000	Extension cable for connecting to cigar jack connecter. Supplies DC power from the vehicles battery terminals directly. Length 3m.	1
Adapter (10-3-3) 	GHDM - 248000	DLC adapter cable for reprogramming and setting Remote Keyless Entry (RKE). 3 different connectors each (10, 3 and 3pins) compose the other side of this 16pin diagnosis connector. This adapter is used with the main DLC cable [26pin to 16pin], while connected to the VCI module. Length: 0.2m Used for control modules on some KIA vehicles.	1

Part name	Part number	Description	Qty.
Adapter (self-test) 	GHDM – 24D000	This self-test adapter is used for self-diagnosis functions that are described in a separate chapter. Do not use this adapter except for its specified purposes. For more information about self-diagnosis, see chapter A-01-006 Self-test adapter.	1
6p--DC jack 	GHDM – 250000	Use this adapter when supplying power to the VCI main module without the vehicle's battery.	1
AC-DC Power adapter 	GHDM – 260000	Adapter for supplying power to the VCI main module from AC power	1
AC power cable 	GHDM - 273000	Cable for AC/DC adapter The socket plug for AC power cable can be different depends on each area. Please take this socket plug in your local site.	1

Part name	Part number	Description	Qty.
Cart System 	GHDM – 5D0000 (Option Item)	Cart system for protecting your GDS safely.	1

Specifications and Features

VCI Specifications

General Features

Item		Specifications
Micro Controller		ARM9 (S3C2410A) @ 208MHz
Memory		RAM 32MByte ROM 32MByte
Operating Voltage		7~35VDC
Temperature	Operating	-10℃ ~ 70℃ (14˚F ~ 158˚F): USB Mode -10℃ ~ 55℃ (14˚F ~ 131˚F): Wireless LAN Mode
	Storage	-20℃ ~ 80℃ (-4˚F ~ 176˚F)
Relative Humidity	Operating	Noncondensing @ 0℃ ~ 10℃ (32˚F ~ 50˚F)
		95%RH @ 10℃ ~ 30℃ (50˚F ~ 86˚F)
		70%RH @ 30℃ ~ 50℃ (86˚F ~ 122˚F)
		40%RH @ 50℃ ~ 70℃ (122˚F ~ 158˚F)
	Storage	Noncondensing @ -20℃ ~ 80℃ (-4˚F ~ 176˚F)
Operating Mode		Diagnosis Function / Flight Record Function
Current Consumption		Typical 350mA @12V
Housing		ABS & Rubber Shroud
Dimension		170 × 105 × 33 mm
Weigh		350g

PC Interface

Item	Specifications
Wire protocol	USB 1.1
Wireless protocol	Wireless LAN IEEE 802.11b

VCI (Vehicle Communication Interface)

Item	Specifications
CAN	CAN 2.0B
K-Line/L-Line	ISO-9141, ISO-9141-CARB, KWP-2000
Commercial Veh.	SAE-J1708, RS-232C
Data/Control Line	Melco Pull-Down UART

Added Interface

Item	Specifications
1. VSS	Vehicle speed simulation
2. Voltage Output	5 ~20 VDC

FCC/CE Notification

FCC ID: TMGGHDM-210000

Contains FCC ID: NI3-IS20V35

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.

Main Components

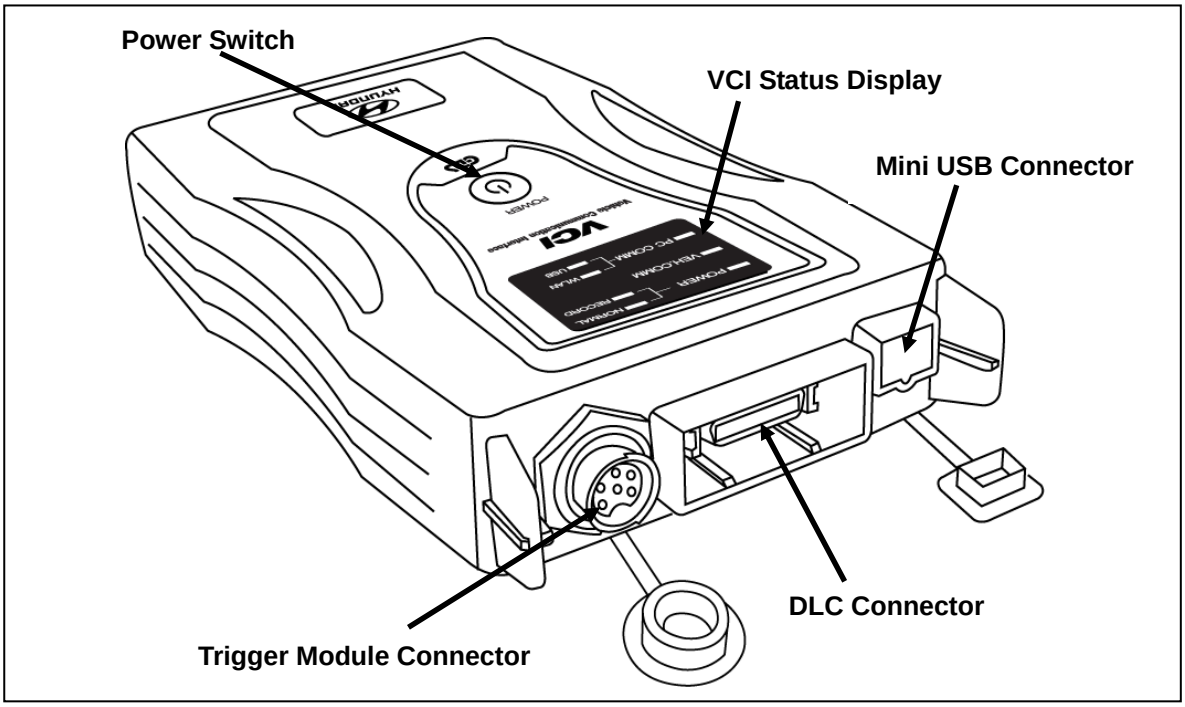


Figure 1. Component Identification

Information Terminal Specifications

Refer To CF-18 Manual or your purchased lap top manual.

Power On/off Method and Switch Operation

Turn on the VCI Module

To turn on the VCI module, first connect the main DLC cable from the VCI module to the vehicle DLC connector and press the main power switch.

If the vehicle DLC is not configured to provide power to the VCI, the cigar power cable must be used.

If needed, the cigar power cable can be connected directly to the vehicle battery by using the battery extension cable.

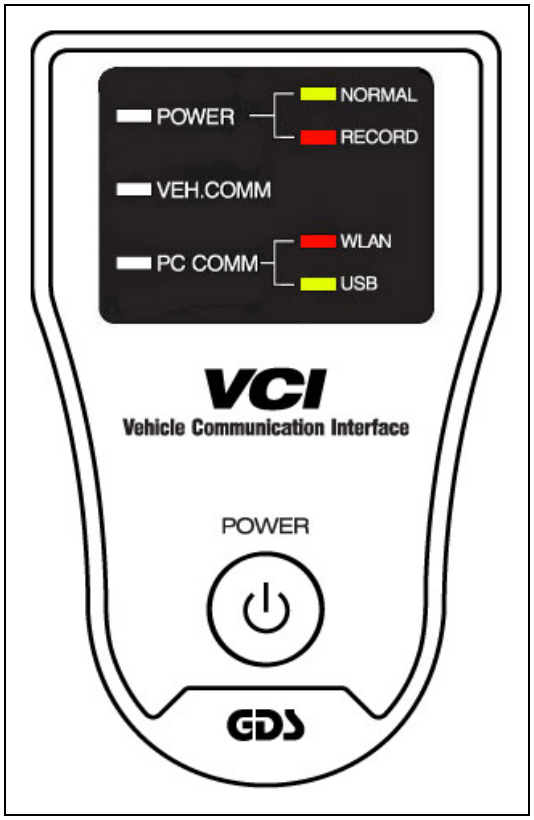


Figure 1. Main switch of VCI module

WARNING

- Do not use the Power switch of the VCI Module in Flight Record mode.
- In Flight Record mode, VCI module and Trigger module automatically turn On/Off depending on IG Key status.

VCI Display Operation

The VCI equipment has an LED display for indicating VCI operating conditions.

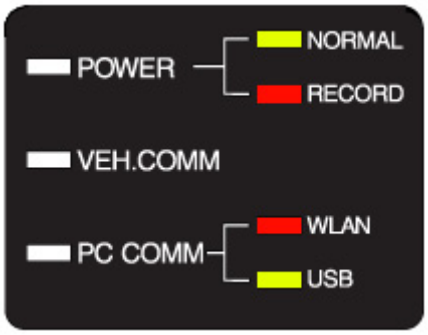


Figure 2. LED status on VCI module

POWER

Color of LED reflects the active function. Sub LED's show which function is currently operating on the VCI module: Normal (diagnosis) or flight record mode.

- Green: Normal (diagnosis) mode
- Red: for Flight Record mode.

VEH. COMM

The current condition of Vehicle communication to the VCI module can be monitored using this LED.

- This LED is Green. Note that this LED may flicker during operation.

PC COMM

Communication between PC and VCI is confirmed based on LED color:

- Red color indicates wireless LAN connection and Green indicates USB cable connection.

Turn Off the VCI Module

To turn off the VCI module, press the power switch for 2~3 seconds or disconnect the DLC or cigar power cable.

Switch Operation of Trigger Module

Trigger module switch operation (Enter / Cancel)

"ENTER" and "CANCEL" Buttons are on the trigger module. In Flight Record mode The VCI module automatically starts recording data whenever it is switched on and each time the "ENTER" button is pressed.

- Recorded communication data is stored in the VCI module memory by pressing "ENTER" function during the Flight Record mode.
- Pressing the "CANCEL" button restarts the data recording process.

Trigger module LED (Power / Ready)

Trigger module has two different LED indicators.

- Power LED: Red Indicates DC power is available for VCI module.
- Ready LED: Green light displays two different ways. The flickering green light means the recorded communication data is being stored after pressing the "ENTER" button and the other normal green light means it is now collecting the data from the ECU.

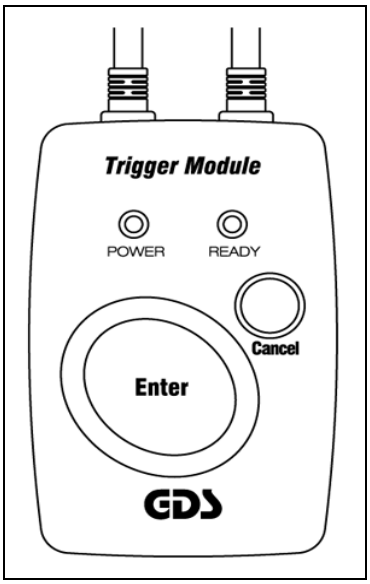


Figure 3. Trigger module buttons and LED's

Installation of VCI Module and DLC Main Cable

Installation of Main DLC Cable

First, confirm the position of the Data link Connector (DLC).

The location of the Data Link Connector (DLC) may vary depending on the type of vehicle.

- It is usually installed in the lower instrument panel, on the driver's side.
- The DLC may be installed in the engine room. Check for the proper location on each vehicle.

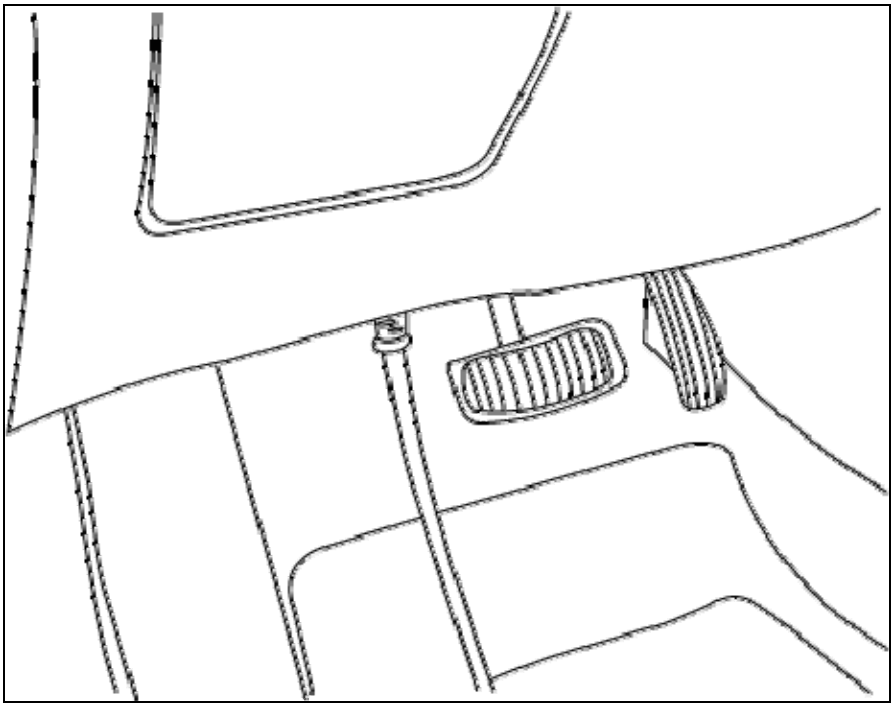


Figure 1. Connect the DLC main Cable to the OBD-II Connector

WARNING

- Do not pull on the wiring when disconnecting the DLC cable.

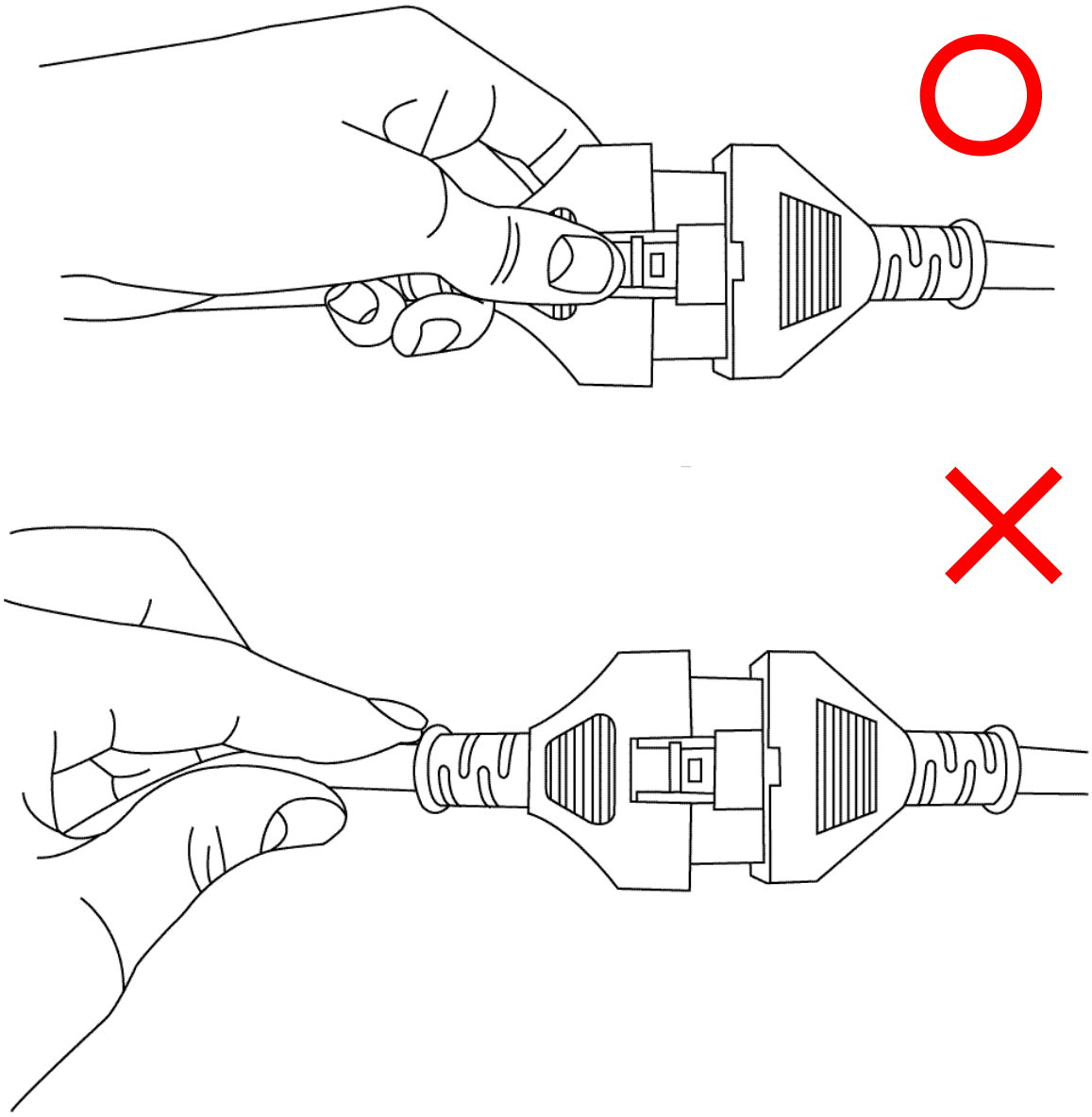


Figure 2. Correct Method of Disconnecting Cable

Installation of VCI Module

The VCI should be secured in a safe location when operating the vehicle to avoid interference with other vehicle equipment.

Be sure that the DLC main cable is connected securely.

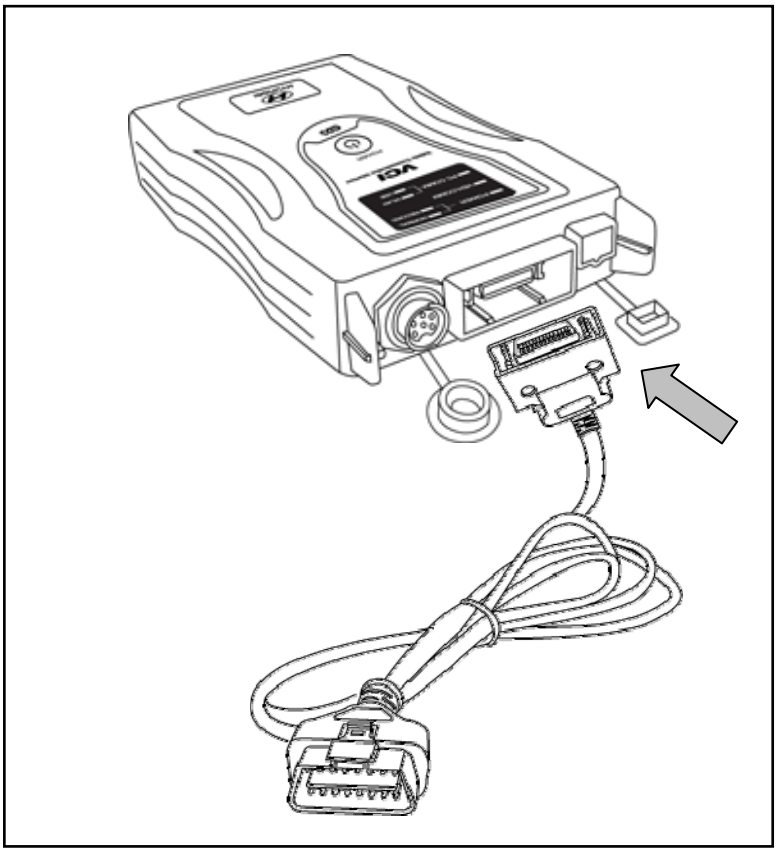


Figure 2. Connecting DLC main Cable to VCI module

WARNING

- The VCI should be secured in a safe location when operating the vehicle to avoid interference with other vehicle equipment.

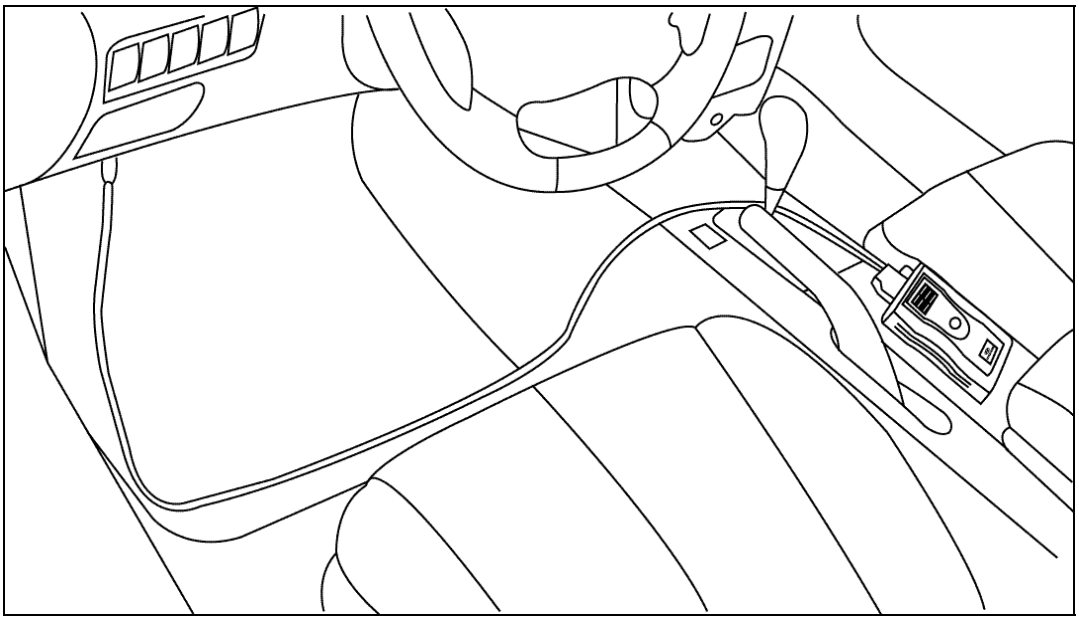


Figure 3. Example Installation of VCI module

Installation of USB Cable

Some GDS features require using the USB cable instead of wireless LAN while communicating between the Information Terminal and the VCI module.

While installing the USB cable to the VCI module, the USB cable must be tightly connected in order to avoid communication loss.

When removing the USB cable, press the connector lock tab first, and then disconnect the cable.

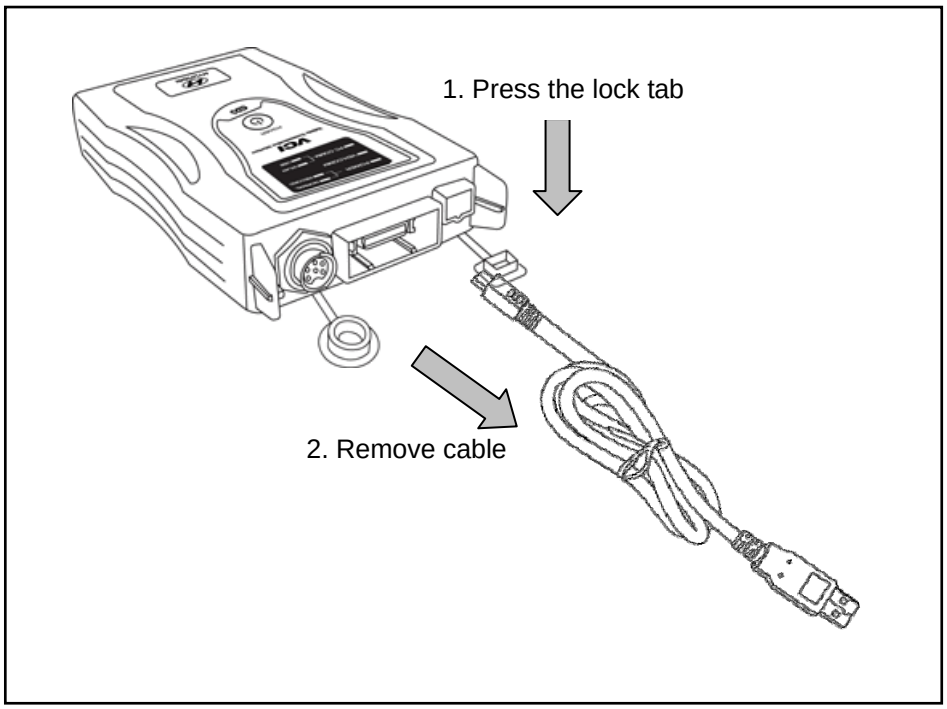


Figure 4. Disconnecting the Mini USB Cable from the VCI module

There are no lock tabs at the Information Terminal side connector on the USB cable, therefore use caution when checking the connecting condition between the USB cable and Information Terminal.

Installation of Trigger Module and Cigar Power Cable

Trigger Module

The Trigger module has two purposes.

When the ignition key is turned to the IG ON position, the trigger module commands the VCI to turn ON. At that time, the VCI (if configured for flight recording) is ready to store ECU data.

When the ENTER button on the trigger module is pressed, the VCI will start recording vehicle ECU data.

Installation of Trigger Module and Cigar Power Cable

Cigar jack from the trigger module cable and round connector with 6pins are connected to the vehicle and the VCI module respectively.

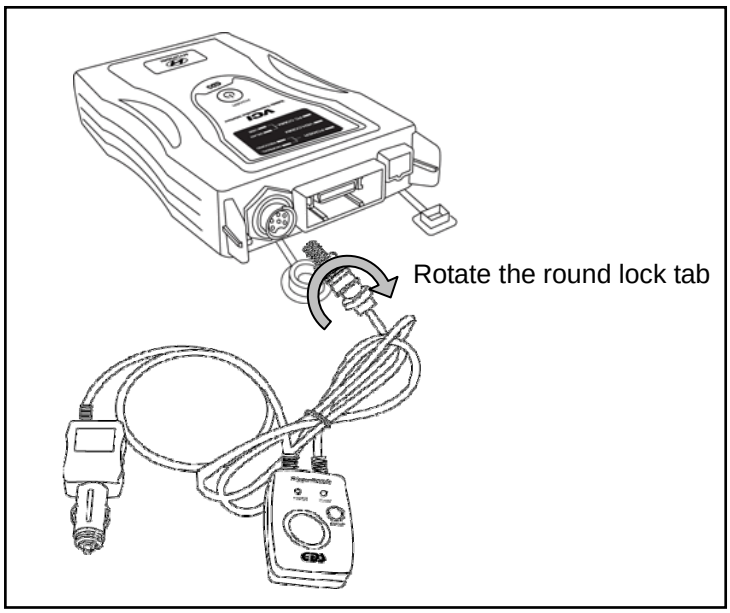


Figure 1. Installation of trigger module and VCI

Connect the trigger module to the cigar lighter or vehicle 12V power point. The trigger module should be secured in a safe location when operating the vehicle to avoid interference with other vehicle equipment

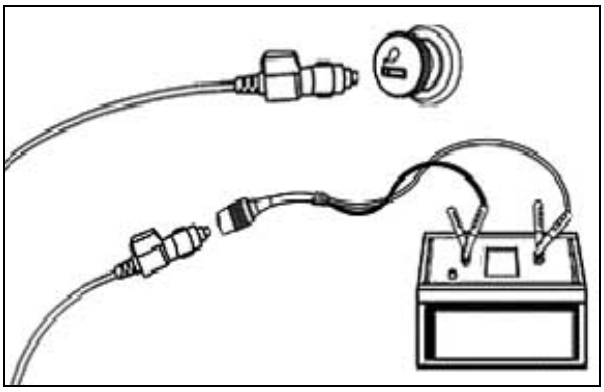


Figure 2. Connecting cigar connector to extension cable and cigar light socket

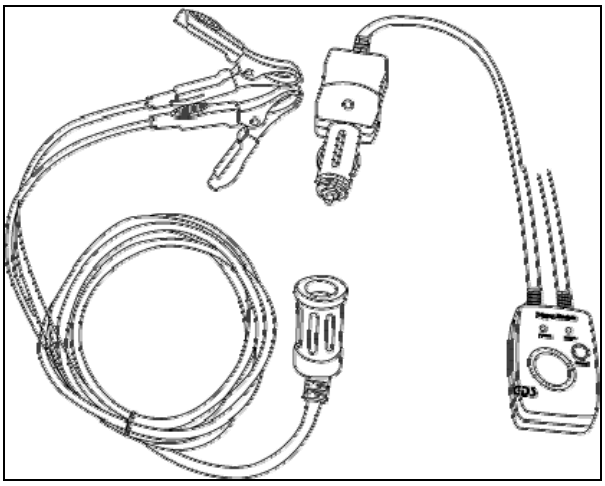


Figure 3. Connection for battery extension cable

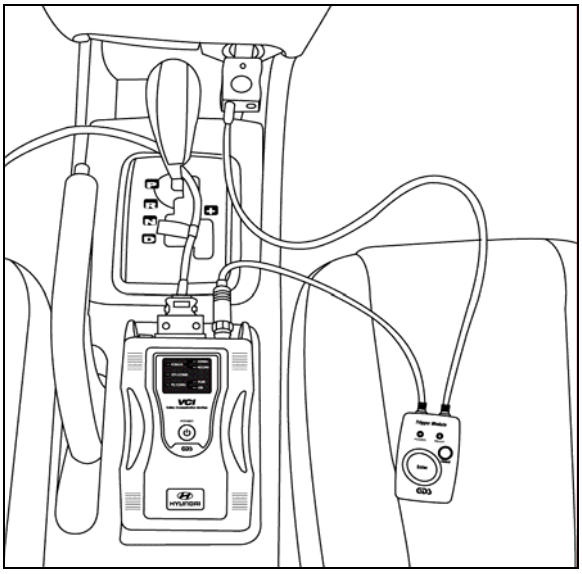


Figure 4. Installation of trigger module in a vehicle

Self Test Adapter

Purpose and Scope of Self Test (Semi-Test)

The self-test functions are used to check the DLC Main Cable and specific related circuits. Not all VCI circuits are checked with the self-test functions.

Basic operation of the self-test function is the loop-back theory.

Loop-back theory is verification between sent data from the VCI 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 the VCI module.

- Step B: Performs test functions on the DLC main cable using the self-test adapter which will short all the terminals (except power and ground functions) at the end of DLC main cable.

This self-test function cannot determine open or short circuits in other adapter cables except Cable-DLC (26pin-16pin). Also, Wireless network functions and the VCI internal memory cannot be tested using this function. If there are any open or shorted USB circuits, this self-test function cannot be performed.

Connecting the Self-Test Adapter

Before performing the self-test function, connect the DLC Main Cable (P/N: GHDM-241000) between VCI module and Self-test adapter. 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

Self-test function is performed when the VCI module and terminal are connected by USB cable. When the VCI module and information terminal are connected by wireless LAN, this self-diagnosis function cannot be performed.

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