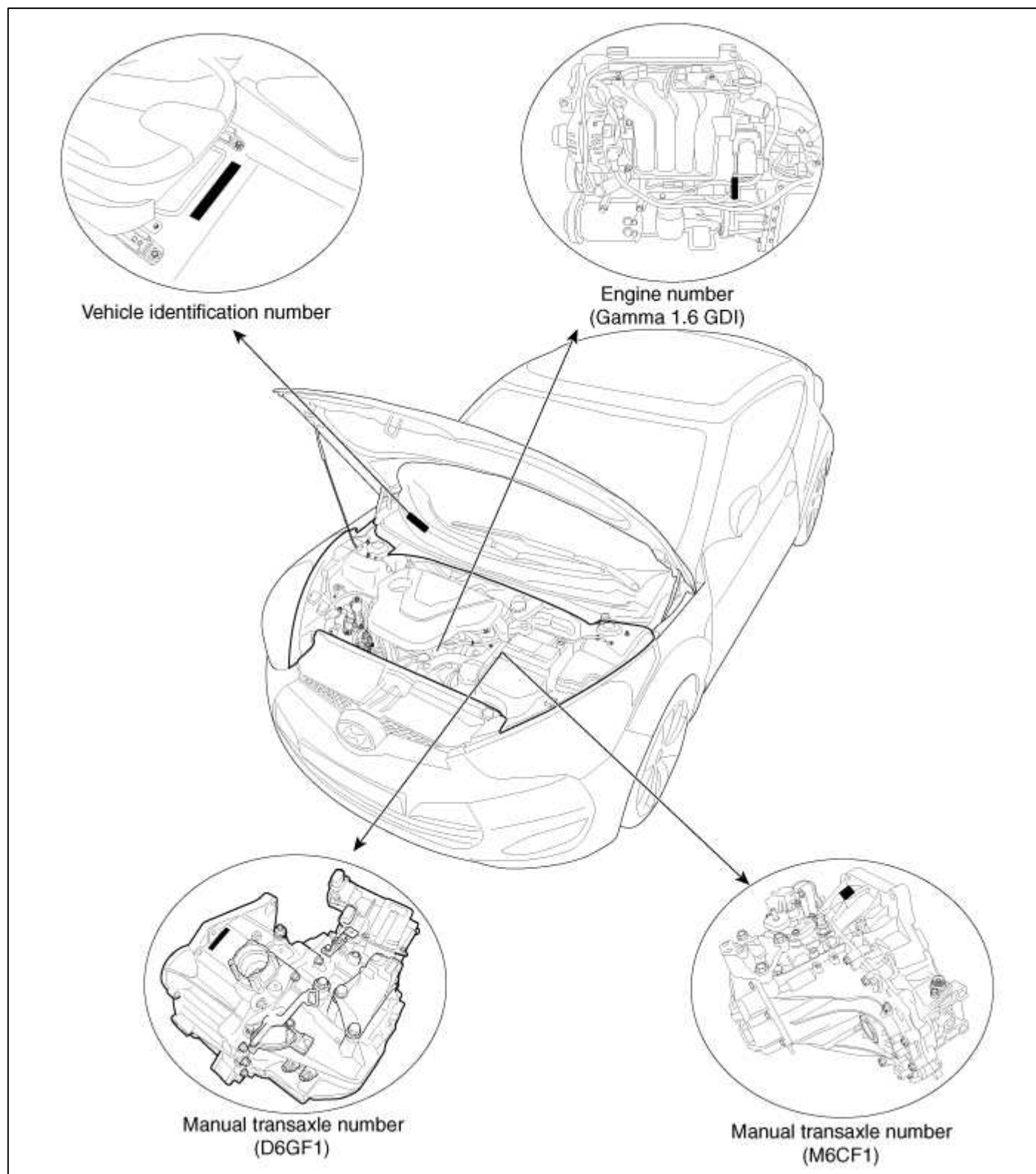


# **VELOSTER(FS) > 2012 > G 1.6 GDI > General Information**

## **General Information > General Information > General Information**

### **Identification Number Locations**



### **Identification Number Description**






#### **Vehicle Identification Number**

**NOTE**

1. The torques shown in the table are standard values under the following conditions.
  - Nuts and bolts are made of galvanized steel bar.
  - Galvanized plain steel washers are inserted.
  - All nuts, bolts and plain washers are dry.
2. The torques shown in the table are not applicable.
  - When spring washers, toothed washers and the like are inserted.
  - If plastic parts are fastened.
  - If self-tapping screws or self-locking nuts are used.
  - If threads and surfaces are coated with oil.
3. Reduce the torque values to the indicated percentage of the standard value under the following conditions.
  - If spring washers are used : 85%
  - If threads and bearing surfaces are stained with oil : 85%

**Meaning Of Symbols**

There are five primary symbols used to complement illustrations. These symbols indicate the part to apply such materials during service.

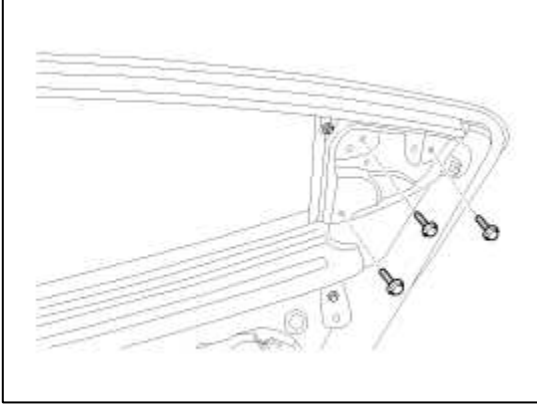
Symbol	Meaning
	Do not reuse the part. Replace a new one.
	Apply engine oil or transmission oil to the part.
	Apply automatic transmission fluid (ATF) to the part.
	Apply grease to the part.
	Apply sealant to the part.

1. Remove the following items.
    - A. Rear door delta inner cover
    - B. Rear door trim
  2. Loosen the rear door outside handle mounting bolts.
- 

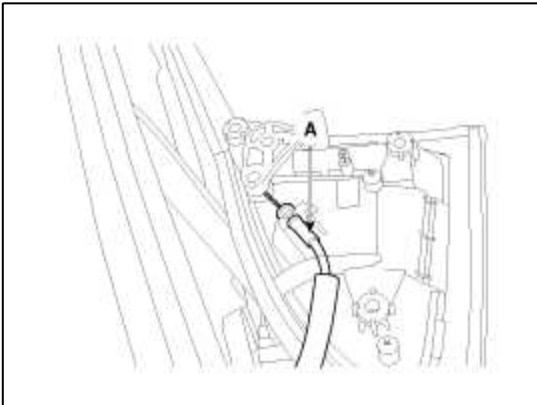
**Tightening torque :**

7.8 ~ 11.8N.m (0.8 ~ 1.2kgf.m, 5.8 ~ 8.7 lb-ft)

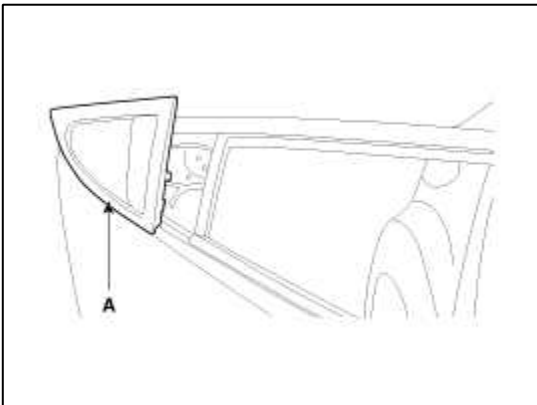
---



3. Disconnect the rear door outside handle cable (A).



4. Remove the rear door outside handle (A).



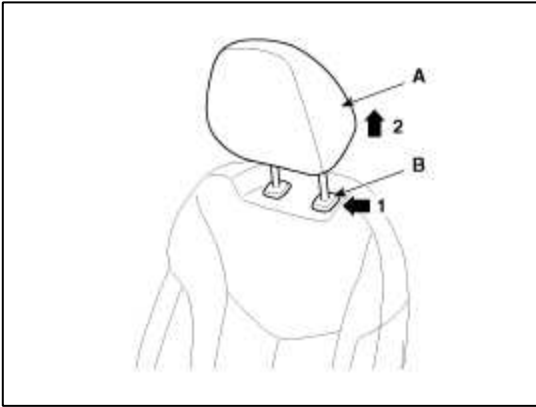
5. Installation is the reverse of removal.

**NOTE**

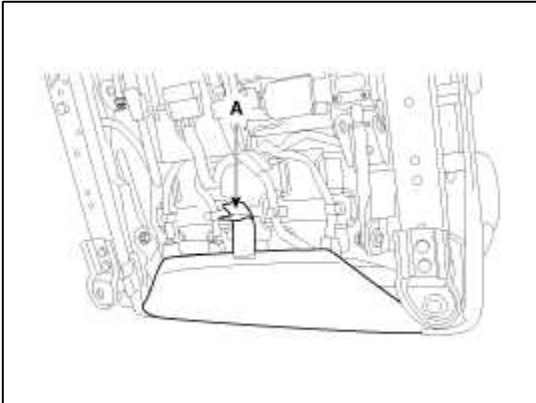
- Make sure the door locks/unlocks and opens/closes properly.
- Replace any damaged clips.

## Door Latch Replacement

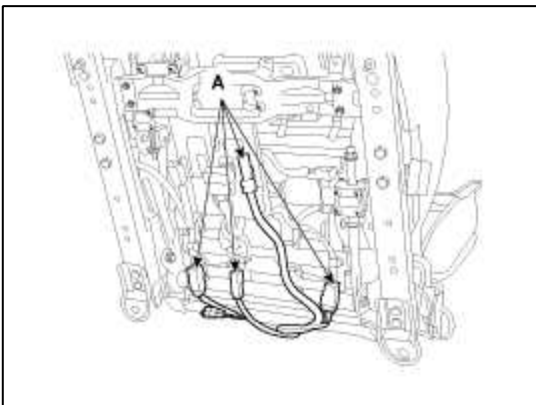
2. Push the lock pin (B), remove the headrest (A).



3. Remove the protector (A).



4. Disconnect the connector (A) and the mounting clips.

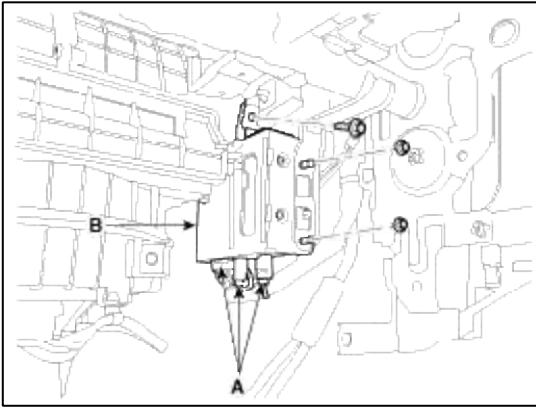


5. To disengage the lock pin (C), lift up the front seat back board (A) to the arrow direction with holding the bottom place (B).

**CAUTION**

- Be careful not to damage the lock pin.

3. Disconnect the connectors (A) and loosen the bolt (1EA) and the nuts (2EA), then remove the Telematics unit (B).



#### Installation

1. Install the Telematics unit.
2. Install the glove box housing.
3. Connect the negative (-) battery terminal.

#### Inspection

1. After replacing the AVN, connect to "call center" by pushing the Blue Link button.
2. If Blue Link service connected successfully, and then technician can hear the "Welcome to Hyundai Bluelink" sound.

#### NOTE

After replacing the AVN, the TMU automatically read the Vehicle Identity Number (VIN) and send it to Blue Link service center.

In this reason, technician have to test that Blue Link connect normally.

### Body Electrical System > MTS System > Mic > Repair procedures

#### Inspection

1. Disconnect the negative(-) battery terminal.
2. Remove the roof trim.  
(Refer to the BD group - "Roof trim")

A07	L_HeadLamp LOW SW	ON = GND	2V or less/OPEN (Reference value:4V or more)	
A08	L_HeadLamp HIGH SW	ON = GND	2V or less/OPEN (Reference value:4V or more)	
A13	L_ACC	ON = BAT	7V or more/4V or less	
A16	L_INH'R' SW	ON = BAT	7V or more/4V or less	
A17	L_WASHER SW	ON = BAT	7V or more/4V or less	
A18	L_WIPER INT SW	ON = BAT	7V or more/4V or less	
A20	A_Wiper Int Volume	-	-	A/D
A21	L_KEY IN SW	ON = GND	2V or less/OPEN (Reference value:4V or more)	
A22	L_TAIL LAMP SW	ON = GND	2V or less/OPEN (Reference value:4V or more)	
A23	L_KEY INTER LOCK SW	ON = OPEN	2V or less/OPEN (Reference value:4V or more)	
B01	LIN (RPAS)	-	-	Communication
B03	L_FRONT FOG Lamp SW	ON = GND	2V or less/OPEN (Reference value:4V or more)	
B04	L_SIDE AIR OPT	ON = GND	2V or less/OPEN (Reference value:4V or more)	
B08	CAN(HIGH)	-		Communication
B09	CAN(LOW)	-		Communication
B11	A_AUTO LIGHT SIGNAL	-	-	A/D
B13	L_AUTO LIGHT SW	ON = GND	2V or less/OPEN (Reference value:4V or more)	
B14	DIAGNOSIS (K-Line)	-	-	Communication
B15	L_DEFOGGER SW	ON = GND	2V or less/OPEN (Reference value:4V or more)	

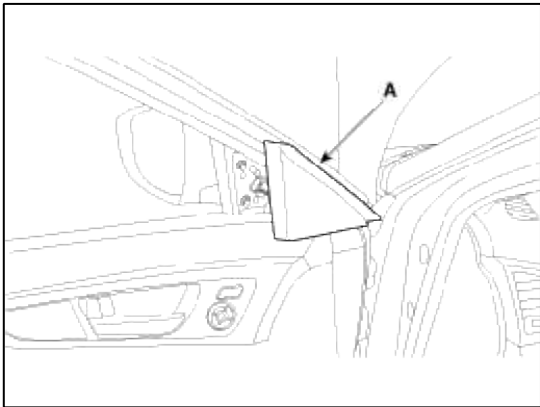
Installation

- 1. Install the driver power window switch and connectors.
- 2. Install the front door trim panel.

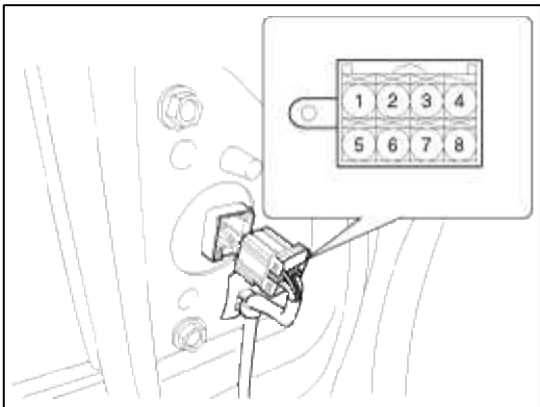
Body Electrical System > Power Door Mirrors > Power Door Mirror Actuator > Repair procedures

Inspection

- 1. Disconnect the negative(-) battery terminal.
- 2. Remove the delta cover(A).

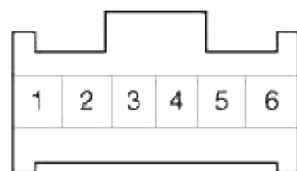
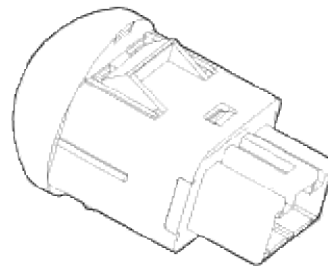
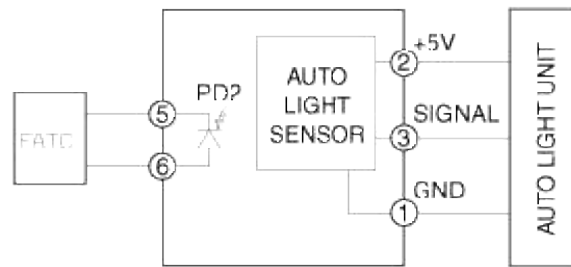


- 3. Disconnect the connector from the mirror.
- 4. Verify that the mirror operates properly as shown in the table.



	Direction	8	7	8	7	6	B+	Ground
		VL	HL	VR	HR	C		
Left	UP	○	○			○	○	○
	DOWN	○	○			○	○	○
	OFF	○	○	○	○	○		
	RIGHT	○		○	○	○	○	○
	LEFT	○		○	○	○	○	○
Right	UP			○	○	○	○	○
	DOWN			○	○	○	○	○
	OFF			○	○	○		
	RIGHT			○	○	○	○	○
	LEFT			○	○	○	○	○

Mirror Heater Inspection



[ Auto Light Connector ]

No.	Description
1	Ground
2	Power (5V)
3	Signal
4	.
5	Photo (+)
6	Photo (-)

### Body Electrical System > Auto Lighting Control System > Auto Light Sensor > Repair procedures

#### Inspection

In the state of IGN1 ON, when multifunction switch module detects auto light switch on, tail lamp relay output and head lamp low relay output are controlled according to auto light sensor's input.

The auto light control doesn't work if the pin sunlight supply (5V regulated power from Ignition 1 power to sunlight sensor) is in short circuit with the ground.

If IGN1 ON, The BCM monitors the range of this supply and raises up a failure as soon as the supply's voltage is out of range. Then this failure occurs and as long as this is present, the head lamp must be turned on without taking care about the sunlight level provided by the sensor.

This is designed to prevent any head lamp cut off when the failure occurs during the night.

#### Removal

1. Disconnect the negative (-) battery terminal.



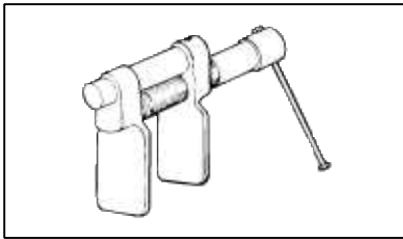
Items	N.m	kgf.m	lb-ft
Hub nut	88.3 ~ 107.9	9.0 ~ 11.0	65.1 ~ 79.6
Master cylinder to brake booster	9.8 ~ 15.7	1.0 ~ 1.6	7.2 ~ 11.6
Brake booster mounting nuts	18.6 ~ 23.5	1.9 ~ 2.4	13.7 ~ 17.4
Air bleeding screw	6.9 ~ 12.7	0.7 ~ 1.3	5.1 ~ 9.4
Brake tube flare nuts	12.7 ~ 16.7	1.3 ~ 1.7	9.4 ~ 12.3
Front caliper guide rod bolts	21.6 ~ 31.4	2.2 ~ 3.2	15.9 ~ 23.1
Rear caliper guide rod bolts	21.6 ~ 31.4	2.2 ~ 3.2	15.9 ~ 23.1
Front caliper assembly to knuckle	78.5 ~ 98.1	8.0 ~ 10.0	57.9 ~ 72.3
Rear caliper assembly to knuckle	63.7 ~ 73.5	6.5 ~ 7.5	47.0 ~ 54.2
Brake hose to caliper	24.5 ~ 29.4	2.5 ~ 3.0	18.1 ~ 21.7
Brake pedal member bracket bolts	18.6 ~ 23.5	1.9 ~ 2.4	13.7 ~ 17.4
Brake pedal shaft nut	29.4 ~ 34.3	3.0 ~ 3.5	21.7 ~ 25.3
Front wheel speed sensor mounting bolt	7.8 ~ 11.8	0.8 ~ 1.2	5.7 ~ 8.7
Rear wheel speed sensor mounting bolt	6.9 ~ 10.8	0.7 ~ 1.1	5.0 ~ 8.0
HECU bracket mounting nut	16.7 ~ 25.5	1.7 ~ 2.6	12.3 ~ 18.8

## Lubricants

Items	Recommended	Quantity
Brake fluid	DOT 3 or DOT 4	As required
Brake pedal bushing and bolt	Chassis grease	As required
Parking brake shoe and backing plate contacting surface	Heat resistance grease	As required
Front caliper guide rod and boot	AI-11P	0.8 ~ 2.0 g
Rear caliper guide rod and boot	AI-11P	0.8 ~ 2.0 g

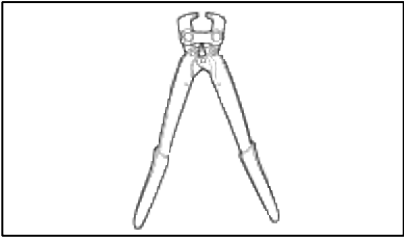
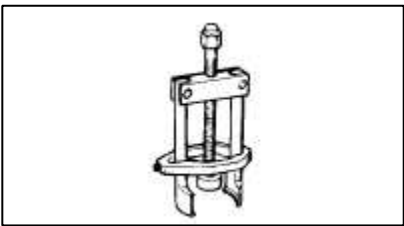
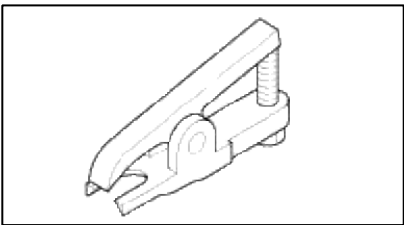
## Brake System > General Information > Special Service Tools

### Special Service Tools

Tool (Number and Name)	Illustration	Use
09581-11000 Piston expander		Spreading the front disc brake piston

## Brake System > General Information > Troubleshooting

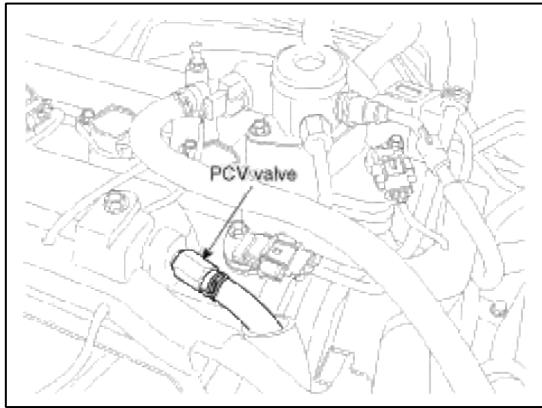
**Driveshaft and axle > General Information > Special Service Tools**
**Special Service Tools**

<b>Tool(Number and Name)</b>	<b>Illustration</b>	<b>Use</b>
09495-3K000 Band installer		Installation of ear type boot band
09495-33000 Puller		Remove the spider assembly from the drive shaft
09568-34000 Ball joint puller		Remove the ball joint front axle

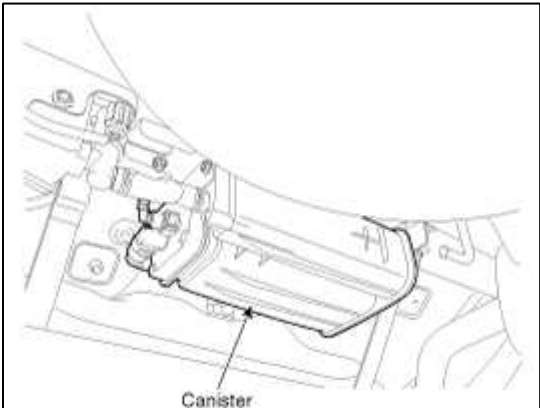
**Driveshaft and axle > General Information > Troubleshooting**
**Troubleshooting**

<b>Trouble Symptom</b>	<b>Probable cause</b>	<b>Remedy</b>
Vehicle pulls to one side	Scoring of driveshaft ball joint	Replace
	Wear, rattle or scoring of wheel bearing	Replace
	Defective front suspension and steering	Adjustment or Replace
Vibration	Wear, damage or bending of driveshaft	Replace
	Driveshaft rattle and hub serration	Replace
	Wear, rattle or scratching of wheel bearing	Replace
Shimmy	Defective wheel balance	Adjustment or Replace
	Defective front suspension and steering	Adjustment or Replace
	Wear, damage or bending of driveshaft	Replace
	Rattle of driveshaft and worn hub splines	Replace
	Wear, rattle or scoring of wheel bearing	Replace

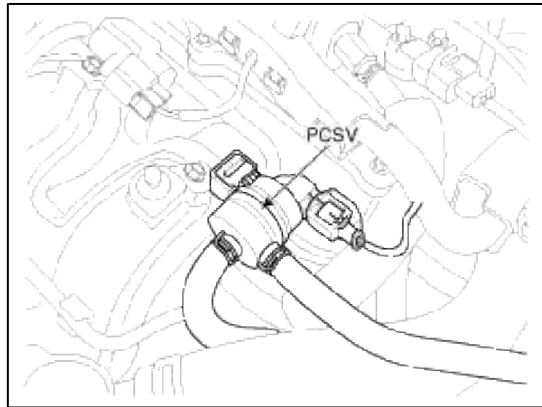
1. PCV valve



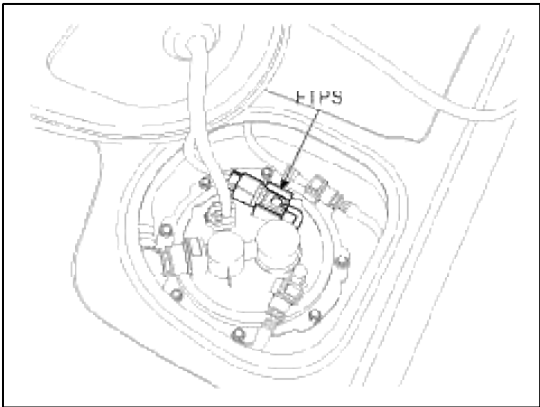
2. Canister



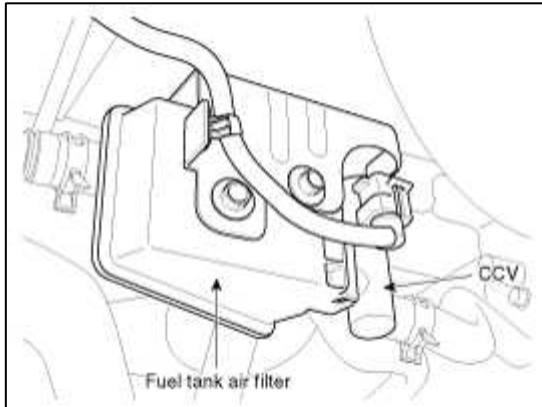
3. Purge Control Solenoid Valve (PCSV)



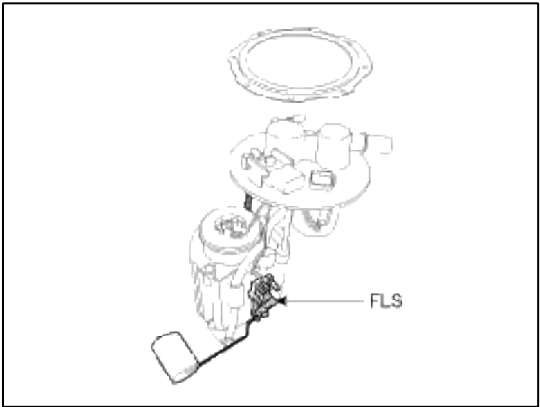
4. Fuel Tank Pressure Sensor (FTPS)



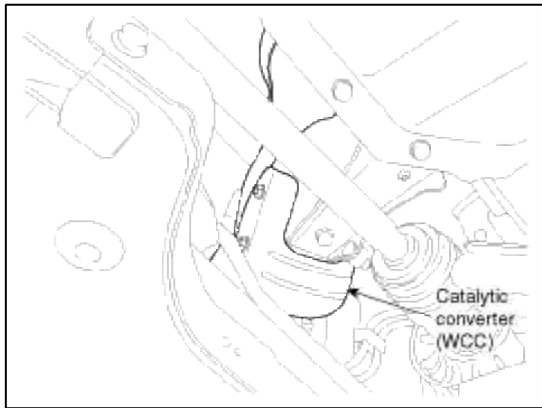
5. Canister Close Valve (CCV)  
7. Fuel tank air filter



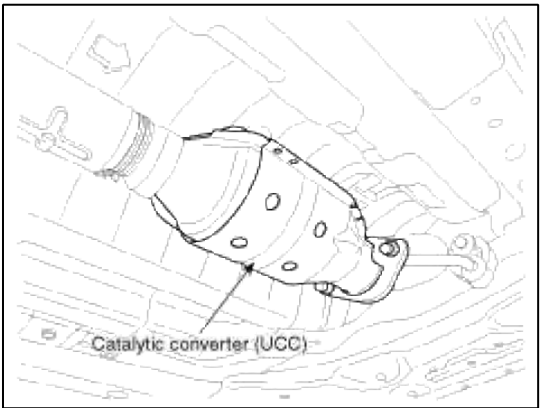
6. Fuel Level Sender (FLS)



8. Catalytic converter (WCC)



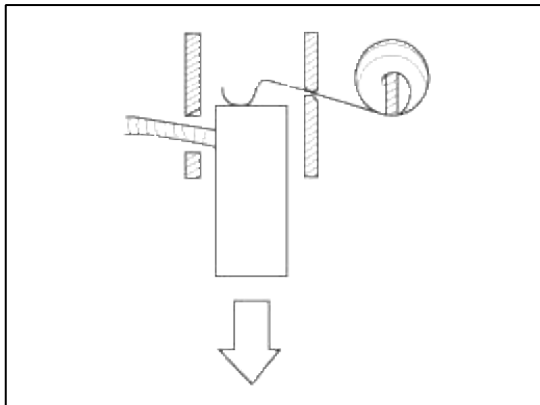
8. Catalytic converter (UCC)



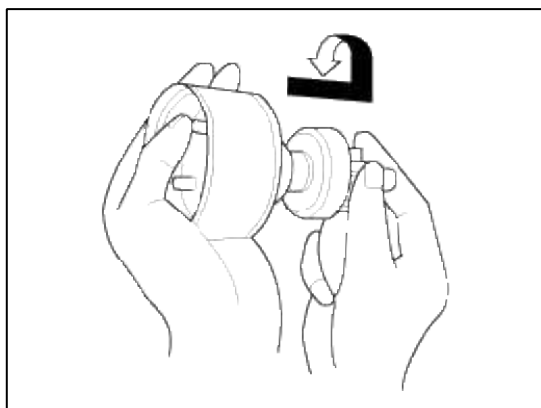
3. Install the armature in the housing, and install the brush holder. Next, pry back each brush spring again, and push the brush down until it seats against the commutator, then release the spring against the end of the brush.

**NOTE**

To seat new brushes, slip a strip of #500 or #600 sandpaper, with the grit side up, between the commutator and each brush, and smoothly rotate the armature. The contact surface of the brushes will be sanded to the same contour as the commutator.

**Overrunning Clutch**

1. Slide the overrunning clutch along the shaft.  
Replace it if it does not slide smoothly.
2. Rotate the overrunning clutch both ways.  
Does it lock in one direction and rotate smoothly in reverse? If it does not lock in either direction or it locks in both directions, replace it.



3. If the starter drive gear is worn or damaged, replace the overrunning clutch assembly. (the gear is not available separately).  
Check the condition of the flywheel or torque converter ring gear if the starter drive gear teeth are damaged.

**Cleaning**

1. Do not immerse parts in cleaning solvent. Immersing the yoke assembly and/or armature will damage the insulation. Wipe these parts with a cloth only.
2. Do not immerse the drive unit in cleaning solvent. The overrun clutch is pre-lubricated at the factory and solvent will wash lubrication from the clutch.
3. The drive unit may be cleaned with a brush moistened with cleaning solvent and wiped dry with a cloth.

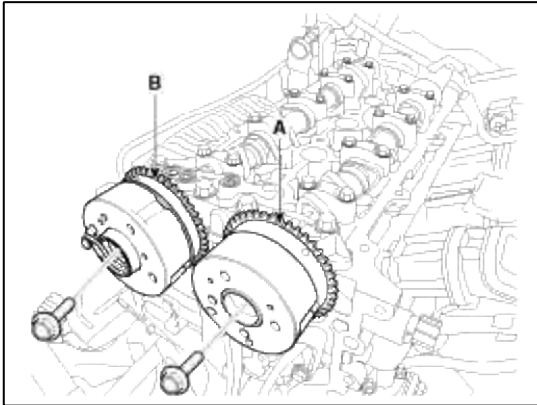
**Engine Electrical System > Starting System > Starter Relay > Repair procedures****Inspection**

1. Remove the fuse box cover.

11. Install the intake CVVT assembly (A) and exhaust CVVT assembly (B).

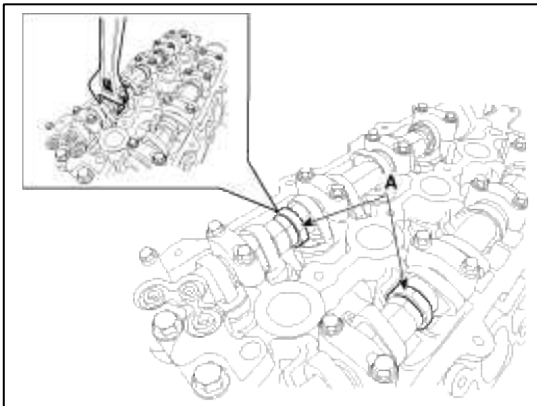
**Tightening torque :**

63.7 ~ 73.5N.m (6.5 ~ 7.5kgf.m, 47.0 ~ 54.2lb-ft)



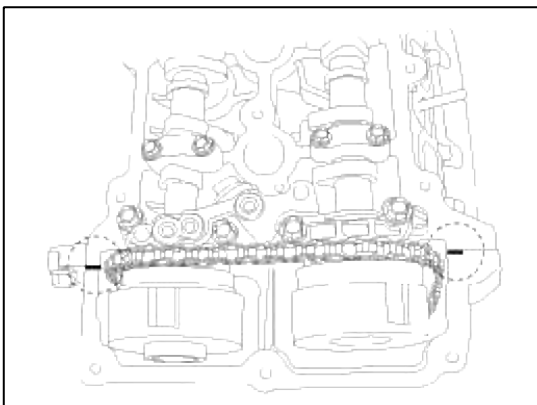
**NOTE**

When installing the CVVT assembly bolt, prevent the camshaft from rotating by using a wrench at position (A).



12. Install the timing chain.  
(Refer to Timing system in this group)
13. Before installing the cylinder head cover, remove oil, dust or hardened sealant from the timing chain cover and the cylinder head upper surface.
14. After applying the liquid gasket, Hyundai Gray RTV or THREE BOND 1217H or LOCTITE 5900H on the cylinder head cover, reassemble the cover within five minutes.

**Width : 2.0 ~ 2.5mm(0.0787~0.0984in.)**



82	-			
83	Immobilizer communication line	When transmitting	Pulse	High: Min. 8.4V(at 14V) Low: Max. 6.44V(at 14V)
84	-			
85	CAN [High]	RECESSIVE	Pulse	2.0 ~ 3.0V
		DOMINANT		2.75 ~ 4.5V
86	Sensor ground	Idle	DC voltage	Max. 50mV
87	Camshaft Position Sensor (CMPS) [Bank 1 / Intake] signal input	Idle	Pulse	High: min. 4.8V Low: Max. 0.6V
88	Head lamp switch input			
89	Crankshaft Position Sensor (CKPS) [A] signal input	Idle	Pulse	Vp_p: Min. 1.0V
90	Canister Close Valve (CCV) control output (Without Immobilizer)	Active	DC voltage	Battery voltage
		Inactive		Max. 1.76V
	Fuel pump relay control output (With Immobilizer)	Relay OFF	DC voltage	Battery voltage
		Relay ON		Max. 1.44V
91	-			
92	-			
93	Main relay control output	Relay OFF	DC voltage	Battery voltage
		Relay ON		Max. 1.7V
94	Start relay control output	Relay OFF	DC voltage	Battery voltage
		Relay ON		Max. 2.64V

Circuit Diagram

## 5) Variant coding's proceeding screen-2

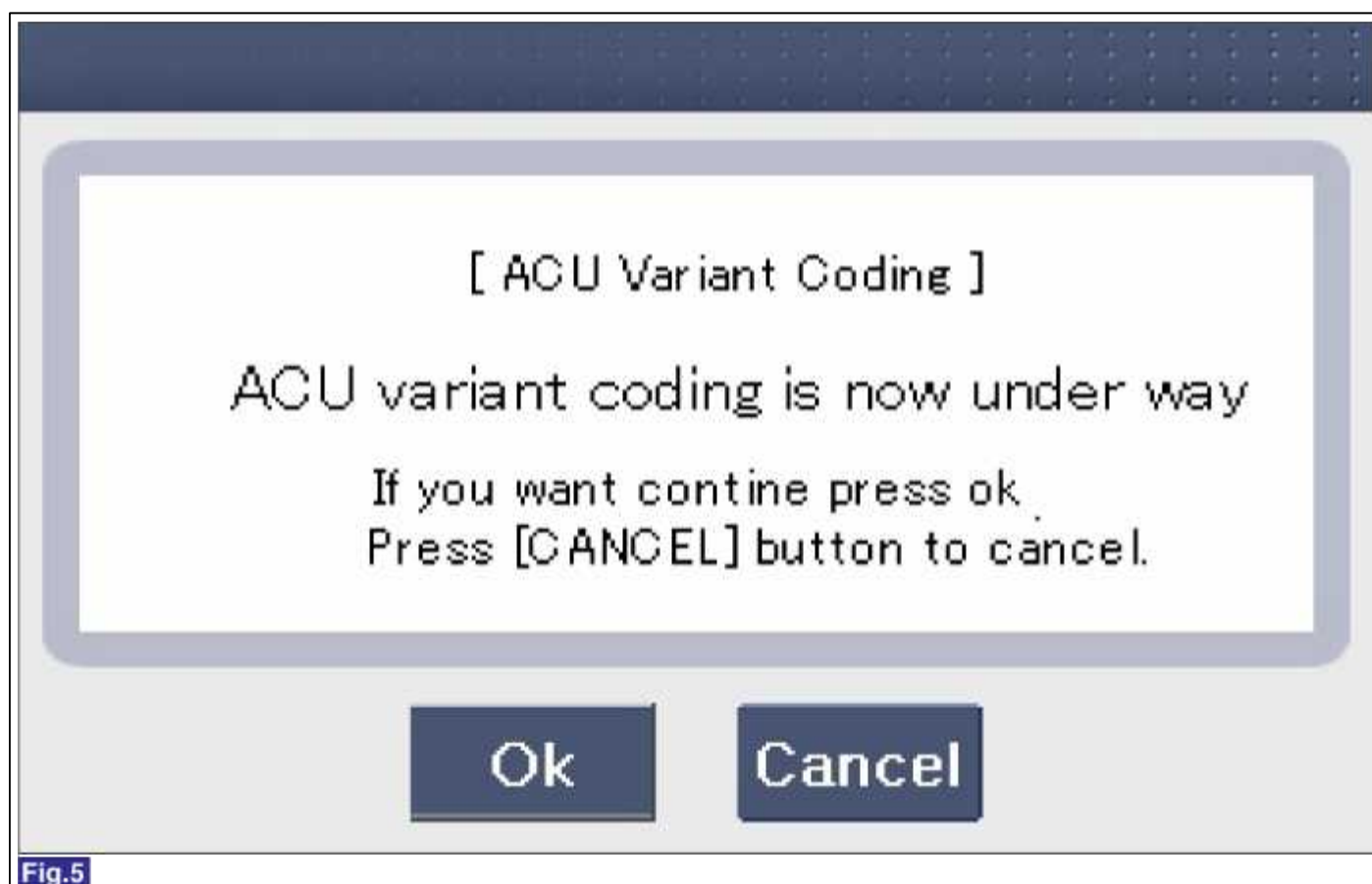


Fig.5

## 6) Variant coding is completed

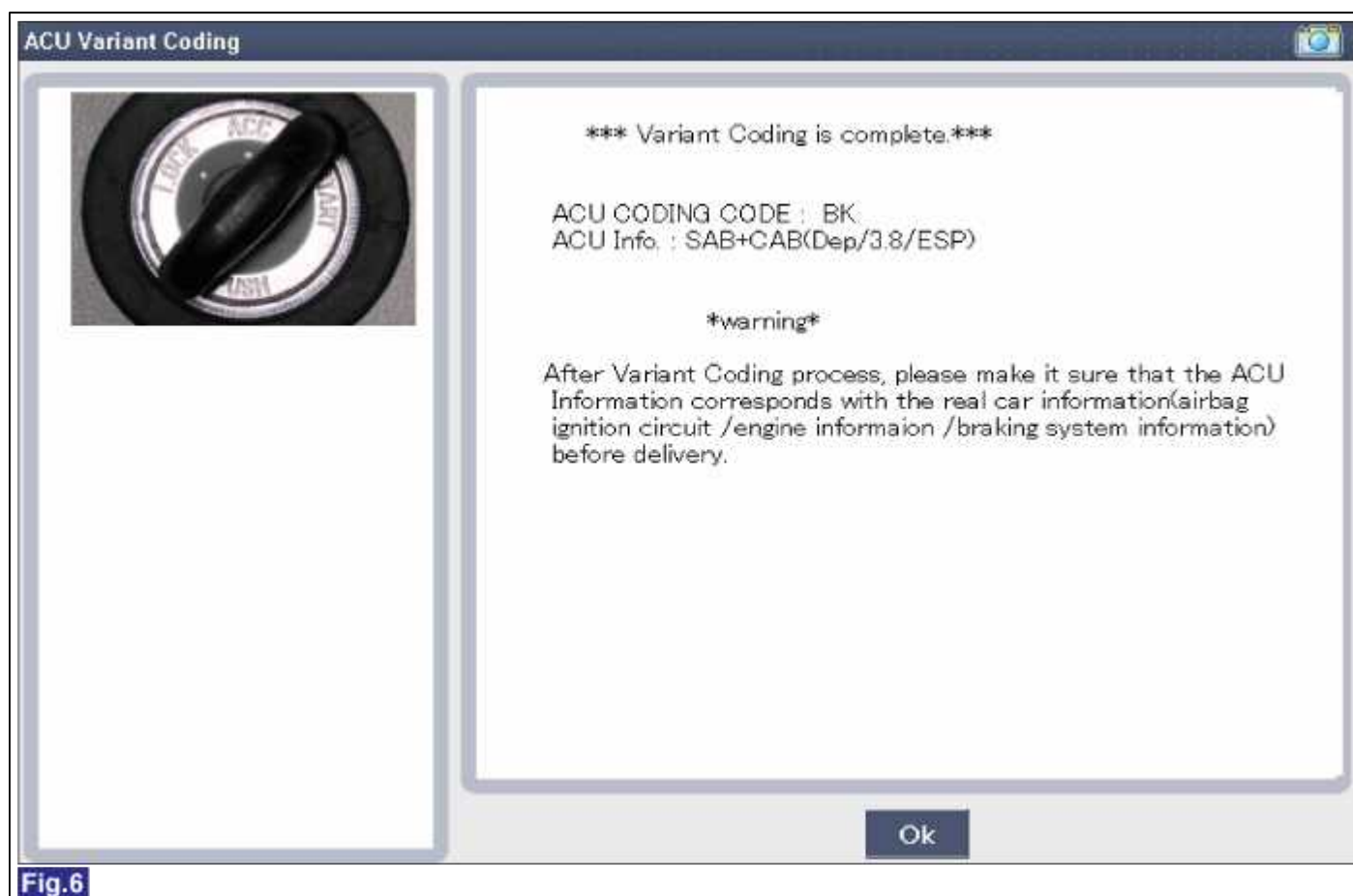


Fig.6