
ENGINE

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5.1 INTAKE SYSTEM

1 Warning and Precaution

1.1 Warning

Be sure to observe the following instructions before repairing, to prevent property damage, personal injury or even death:

- (1) Temperature in engine compartment is very high when engine is running. Before removal, you must make sure that engine has shut off, and engine compartment has cooled down sufficiently, otherwise, there is a risk of scald injury.

1.2 Precaution

In order to avoid dangerous operation and damage to the vehicle, always follow the instructions below before repair:

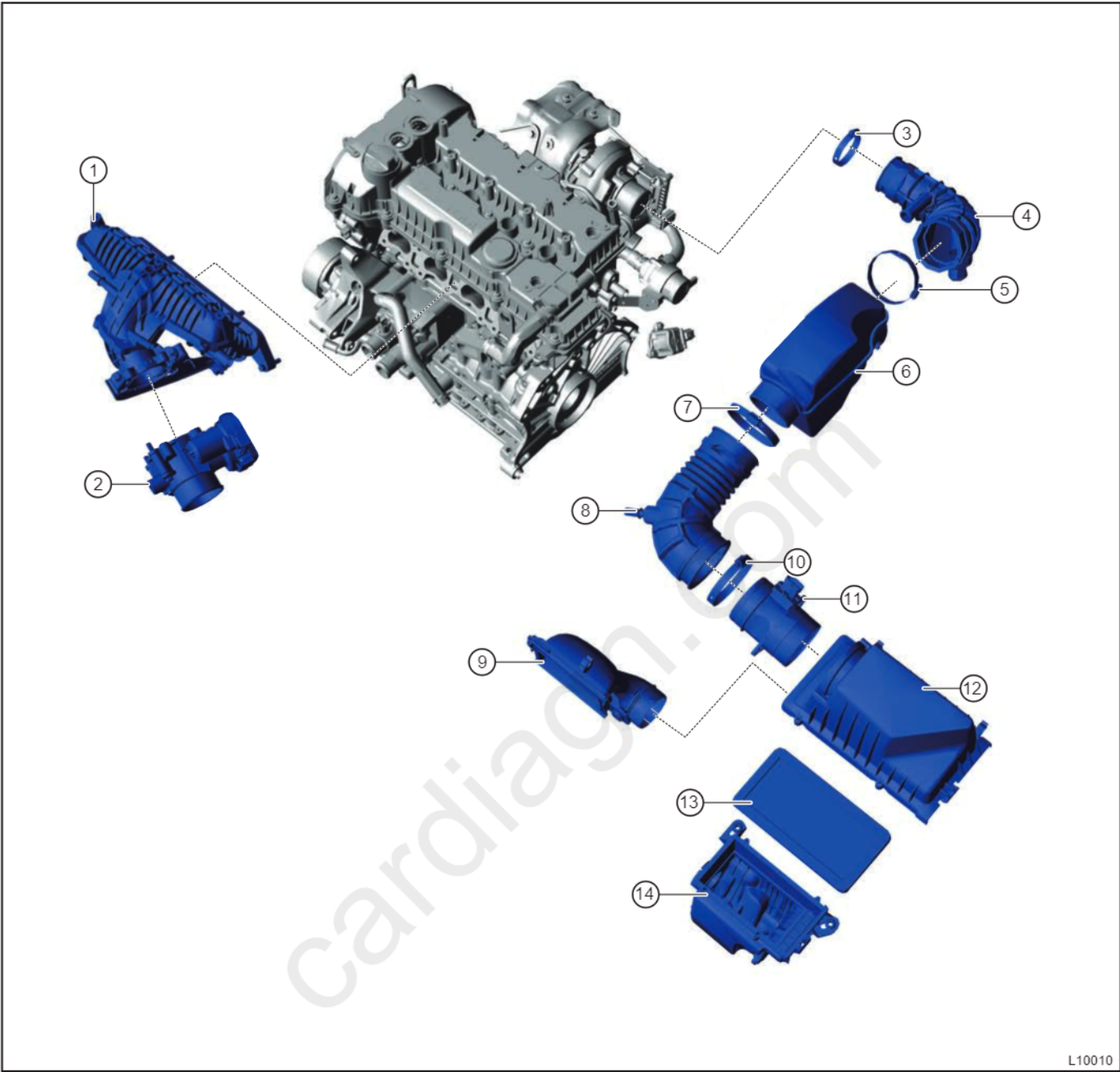
- (1) Wasted air filter element should be handled by the specialized department according to local laws and regulations. Never discard it at will.
- (2) Check for foreign matter in air filter and hose when installing. Avoid inhaling foreign matter after engine running, causing damage to the components.
- (3) After removing electronic throttle, block intake manifold intake port with suitable blocking pieces to prevent foreign matter from entering, causing damage to the components.

2 System Overview

2.1 System Description

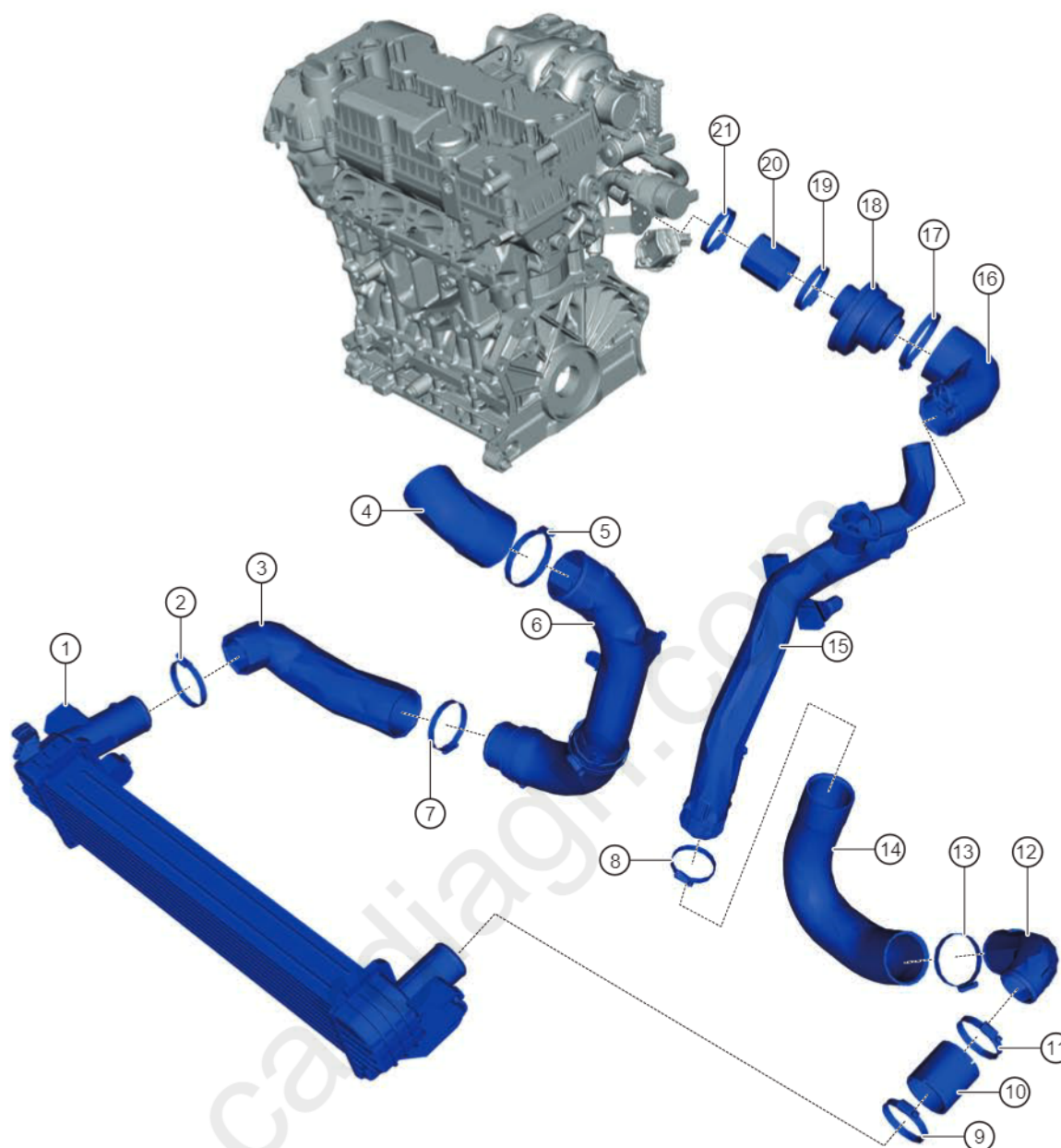
Intake system uses air filter to remove particulates and dust in the air, the air is pressurized by the turbocharger and cooled by the intercooler, then flows into the intake manifold assembly through the electronic throttle assembly, and the cooled fresh air is evenly delivered to each cylinder by the intake manifold to cooperate with the engine.

2.2 System Components Diagram



L10010

1	Intake Manifold Assembly	8	Intake Hose I
2	Electronic Throttle	9	Air Direct Pipe Assembly
3	Worm Clamp	10	Worm Clamp
4	Intake Hose III	11	Air Flow Meter
5	Worm Clamp	12	Air Filter Upper Housing
6	Intake Hose II	13	Air Filter Element Assembly
7	Worm Clamp	14	Air Filter Lower Housing

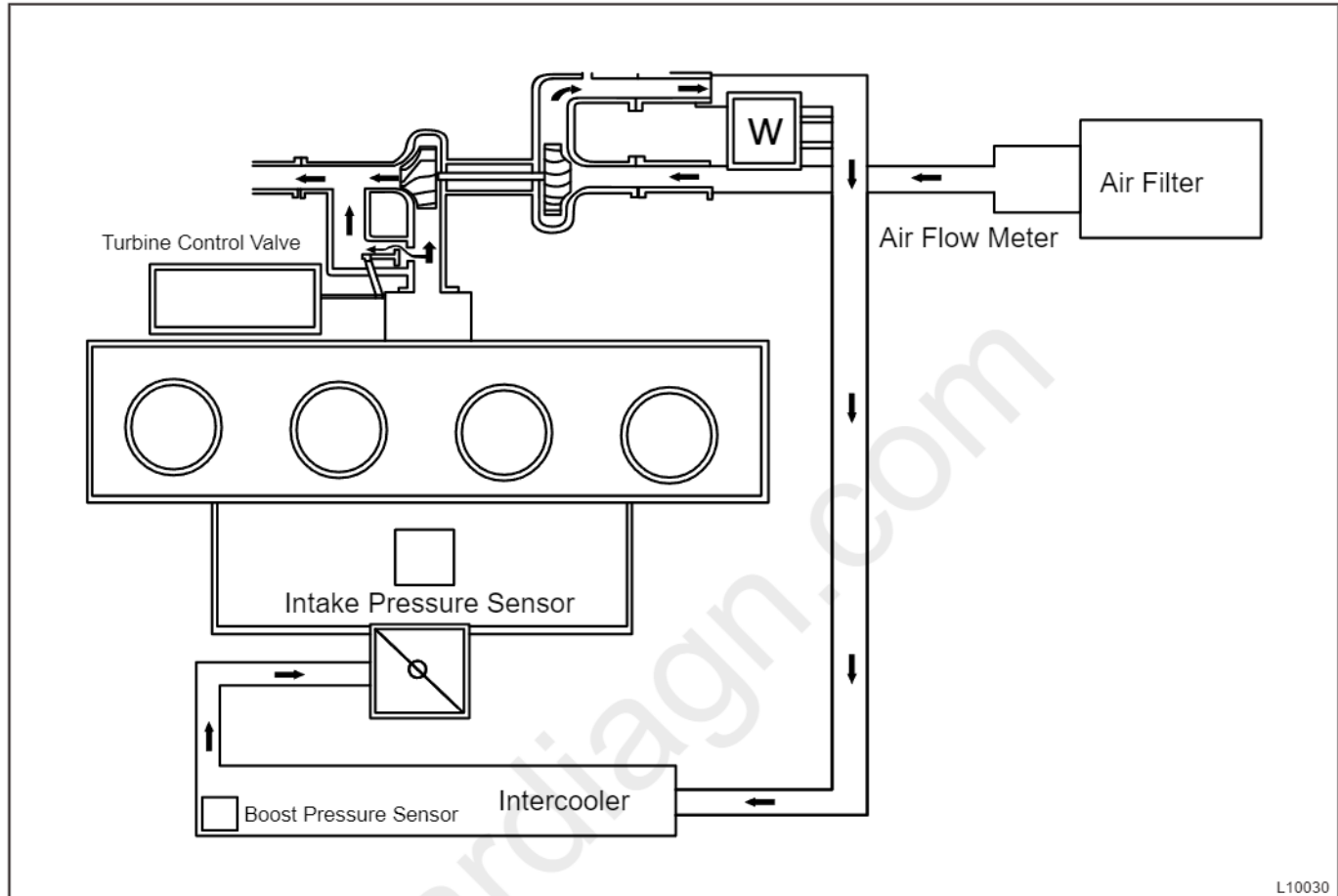


L10020

1	Intercooler Assembly	12	Intercooler Intake Pipe
2	Worm Clamp	13	Worm Clamp
3	Intercooler Outlet Pipe Assembly I	14	Intercooler Intake Pipe Assembly III
4	Intercooler Outlet Pipe Assembly III	15	Intercooler Intake Pipe Assembly II
5	Worm Clamp	16	Intercooler Intake Pipe Assembly I
6	Intercooler Outlet Pipe Assembly II	17	Worm Clamp
7	Worm Clamp	18	Intercooler Intake Pipe Muffler
8	Worm Clamp	19	Worm Clamp

9	Worm Clamp	20	Muffler Hose
10	Intercooler Connecting Pipe	21	Worm Clamp
11	Worm Clamp		

2.3 System Schematic Diagram



L10030

3 Component Operation Description

3.1 Intake Pressure Temperature Sensor

Intake pressure sensor: monitor absolute pressure changes of the intake manifold, send reference signal to ECU for calculating the duration of fuel injection.

Intake temperature sensor: monitor intake temperature, provide it to ECU as the basis for calculating air density.

3.2 Intercooler

Its function is to reduce the high temperature air temperature after supercharging, so as to reduce the heat load of engine, increase the intake air volume, and then increase the engine power; For the engine, intercooler is an important component of supercharging system.



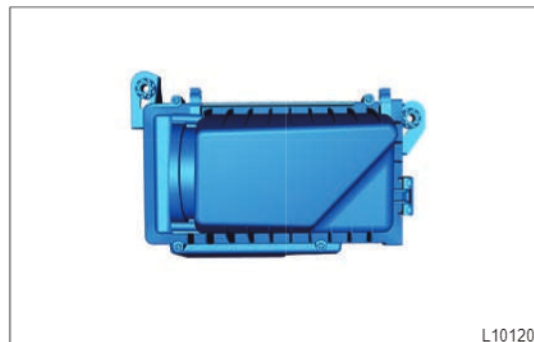
3.3 Intake Manifold Assembly

Distribute the fresh air cooled by intercooler to each cylinder.



3.4 Air Filter Assembly

The air filter is mainly used to remove particulate impurities in the air.



3.5 Electronic Throttle

It consist of four parts: drive module, train module, executive module and feedback module, and all components are integrated into the same throttle valve housing. Throttle feedback module uses two redundant structures. When malfunction occurs, throttle valve plate will stop at the limp home position (above mechanical bottom dead center) determined by mechanical way. Electronic throttle performs control only by corresponding electronic control unit or electronic test circuit. In principle, it is necessary to ensure that the throttle valve plate does not operate dynamically to the mechanical dead center.



3.6 Electronic Accelerator Pedal

There are two identical potentiometer type sensors in the electronic accelerator pedal, which provide the driving demand signal of driver to the ECU. This process is exactly the same as the current mechanical pedal in operation to adapt to the driver's driving habits for many years. Two identical sensors provide accelerator signals to ECU respectively, thus ensuring the safety and reliability of this system.



L10140

4 Special Tool and Equipment

4.1 Special Tool

Tool Name	Tool Drawing
Diagnostic Tester	
	S00001

5 Fasteners Torque List

5.1 Torque Specifications

Description	Torque (N·m)
Coupling Screw Between Air Filter Upper Housing and Lower Housing	1.3 ± 0.2
Air Filter Assembly Fixing Bolt	7 ± 1
Air Direct Pipe Assembly Fixing Bolt	7 ± 1
Intake Hose Fixing Clamp	3.5 ± 0.5
Intercooler Intake Pipe Fixing Clamp	5 ± 1
Intercooler Outlet Pipe Fixing Clamp	5 ± 1
Coupling Bolt Between Intercooler Outlet Pipe Assembly II and Intercooler Intake Pipe Assembly II	5 ± 1
Fixing Bolt Between Intercooler Intake Pipe Assembly II and Transmission	9 ± 1.5

6 DIAGNOSIS & TESTING

6.1 Problem Symptoms Table

Hint:

Use symptoms table below to help determine cause of problem. Check each suspected area in sequence. Repair, replace or adjust faulty components as necessary.

Intake system

Symptom	Possible Cause
Engine idles roughly	Electronic throttle assembly (dirty)
	Intake manifold assembly (broken, leaked)
	Activated charcoal canister solenoid valve (remains on)
	Intake pressure sensor
	Electronic throttle assembly gasket (damaged)
	Fuel rail injector assembly (installed incorrectly)

7 ON-VEHICLE SERVICE

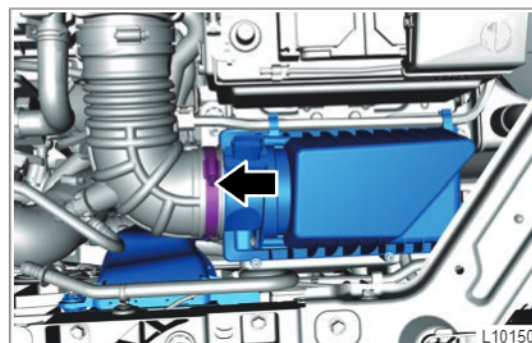
7.1 Air Filter Element

■ Removal

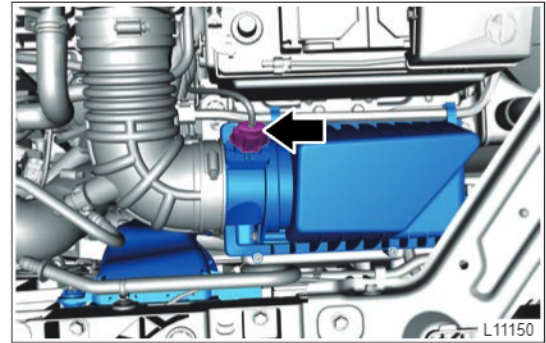
⚠ Warning

- **Be sure to wear safety equipment to prevent accidents, when removing air filter element.**
- **Appropriate force should be applied when removing air filter element. Be careful not to operate roughly.**

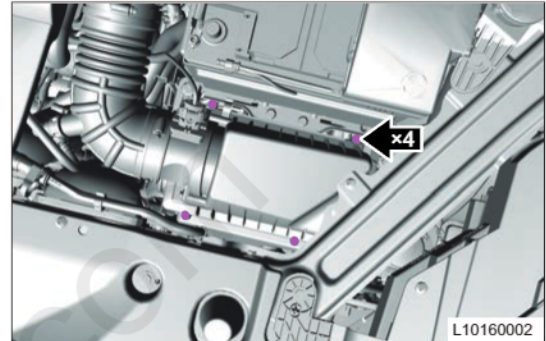
- (1) Turn off all electrical equipment and ENGINE START STOP switch.
- (2) Remove the engine compartment trim cover assembly.
- (3) Remove the negative battery cable.
- (4) Loosen worm clamp and disconnect intake hose.



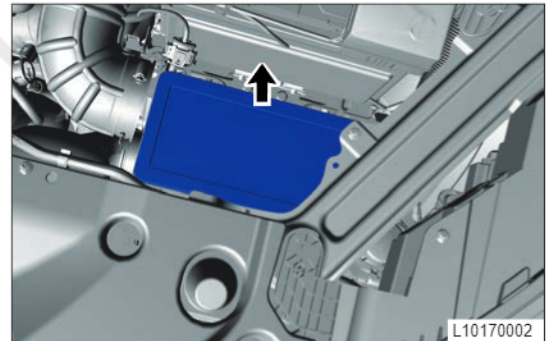
- (5) Disconnect the air flow meter connector.



- (6) Remove 4 coupling screws between air filter upper housing and lower housing, and remove upper housing carefully.



- (7) Remove the air filter element in the direction of arrow.



■ Inspection

- (1) Check if air filter is dirty, if it is dirty severely, it is required to replace new air filter.

■ Installation

⚠ Caution

- Clean the air filter upper housing and lower housing.
- Wasted air filter element should be handled by the specialized department according to local laws and regulations. Never discard it at will.

- (1) Install 4 fixing screws between air filter upper housing and lower housing.

Torque: $1.3 \pm 0.2 \text{ N}\cdot\text{m}$

- (2) Connect intake hose, and tighten worm clamp.

Torque: $3 \pm 0.5 \text{ N}\cdot\text{m}$

- (3) Connect the air flow meter connector.

- (4) Install the engine compartment trim cover assembly.

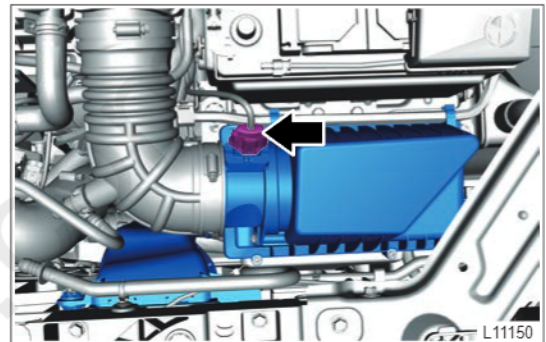
7.2 Air Filter Assembly

■ Removal

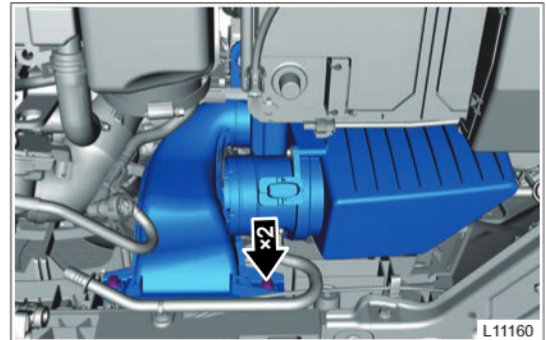
⚠ Caution

- **Be sure to wear safety equipment to prevent accidents, when removing air filter assembly.**
- **Appropriate force should be applied when removing air filter assembly. Be careful not to operate roughly.**

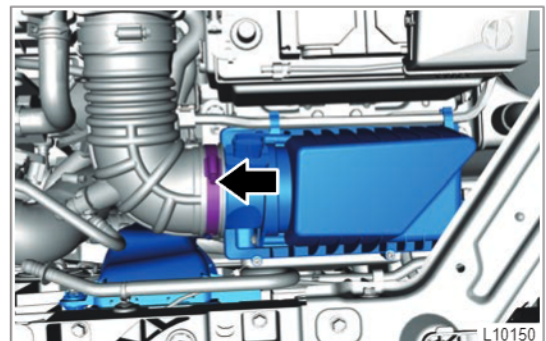
- (1) Turn off all electrical equipment and ENGINE START STOP switch.
- (2) Remove the engine compartment trim cover assembly.
- (3) Disconnect the negative battery cable.
- (4) Disconnect the air flow meter connector.



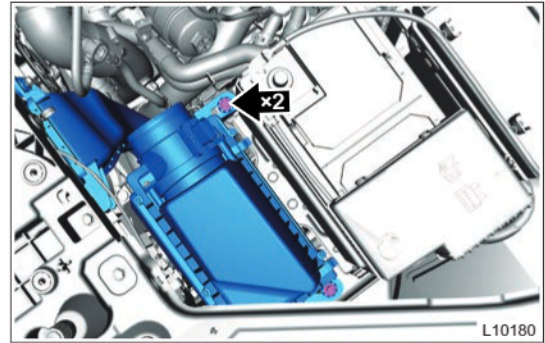
- (5) Remove 2 fixing bolts from air direct pipe assembly.



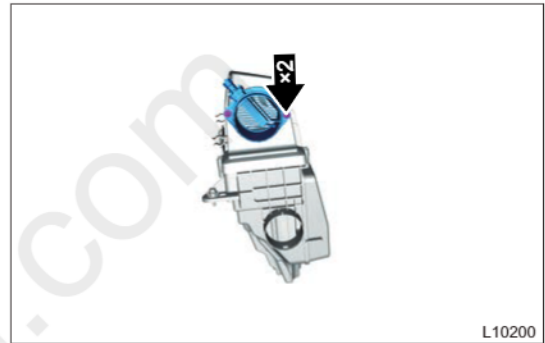
- (6) Loosen worm clamp and disconnect intake hose.



- (7) Remove 2 fixing bolts from air filter assembly.



- (8) Disconnect the positive battery wire harness from air filter with air direct pipe assembly and remove air filter with air direct pipe assembly.
- (9) Remove 2 fixing screws between air flow meter and air filter assembly.



- (10) Separate air direct pipe and air filter assembly.

■ Installation

⚠ Caution

- Check for foreign matter in air filter and hose when installing. Avoid inhaling foreign matter after engine running, causing damage to the components.

- (1) Install air flow meter to air filter assembly.
- (2) Insert air direct pipe into air filter assembly, and install 2 fixing bolts to air filter assembly.

Torque: $7 \pm 1 \text{ N}\cdot\text{m}$

- (3) Connect intake hose, and tighten worm clamp.

Torque: $3 \pm 0.5 \text{ N}\cdot\text{m}$

- (4) Connect the air flow meter connector.
- (5) Install the engine compartment trim cover assembly.

7.3 Intake Hose Assembly

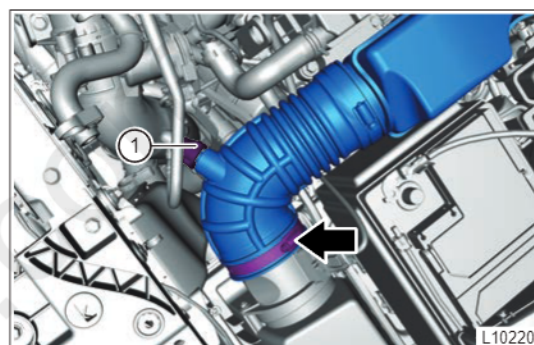
■ Removal

Warning

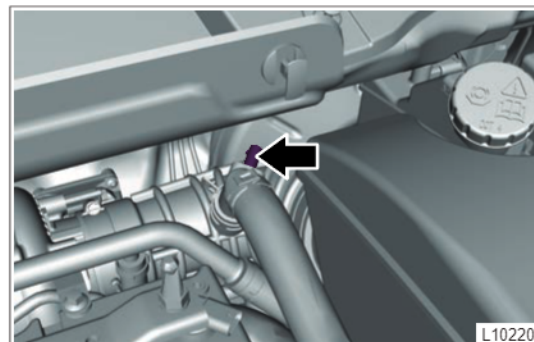
- **Be sure to wear safety equipment to prevent accidents, when removing intake hose assembly.**
- **Appropriate force should be applied, when removing intake hose assembly. Be careful not to operate roughly.**
- **Try to prevent body paint surface from being scratched during removal of intake hose assembly.**

- (1) Turn off all electrical equipment and ENGINE START STOP switch.
- (2) Remove the engine compartment trim cover assembly.
- (3) Disconnect the negative battery cable.
- (4) Remove the battery assembly.

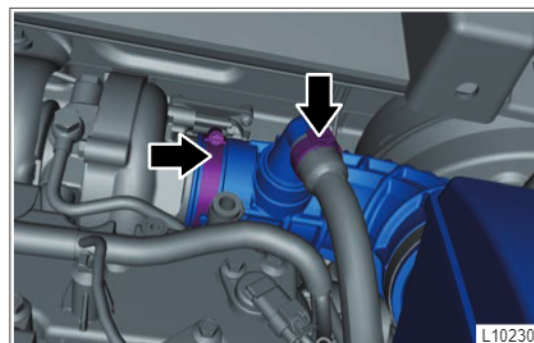
- (5) Loosen worm clamp and disconnect the connection between air flow meter and intake hose assembly.
- (6) Disconnect the connection between charcoal canister solenoid valve outlet pipe (1) and intake hose assembly.



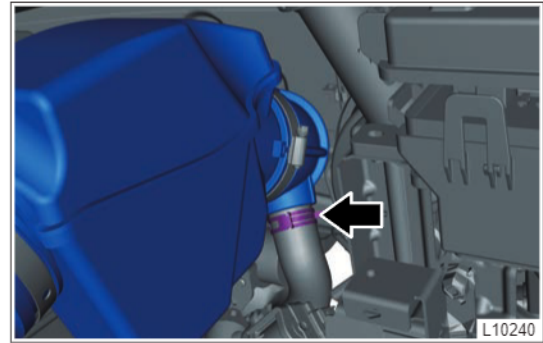
- (7) Loosen worm clamp and disconnect the connection between air flow meter and intake hose assembly.
- (8) Disconnect the connection between charcoal canister solenoid valve outlet pipe (1) and intake hose assembly.



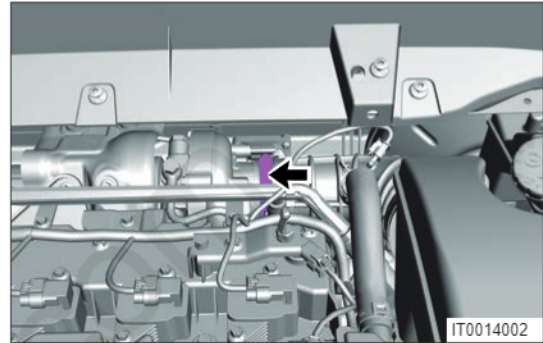
- (9) Loosen clamp and disconnect the connection between hose and intake hose.
- (10) Loosen worm clamp and disconnect the connection between intake hose assembly and turbocharger.



- (11) Loosen elastic clamp and disconnect the connection between intercooler inlet hose and inlet hose assembly.



- (12) Loosen clamp (arrow) and disconnect the connection between intake hose III and turbocharger .



- (13) Remove the intake hose assembly.

■ Inspection

- (1) Check intake hose assembly for damage and blockage.

■ Installation

- (1) Connect intercooler intake pipe hose.
 (2) Connect intake hose assembly, and tighten worm clamp.

Torque: $4 \pm 0.5 \text{ N}\cdot\text{m}$

- (3) Connect the charcoal canister solenoid valve outlet pipe.
 (4) Connect the air flow meter connector.
 (5) Install the engine compartment trim cover assembly.

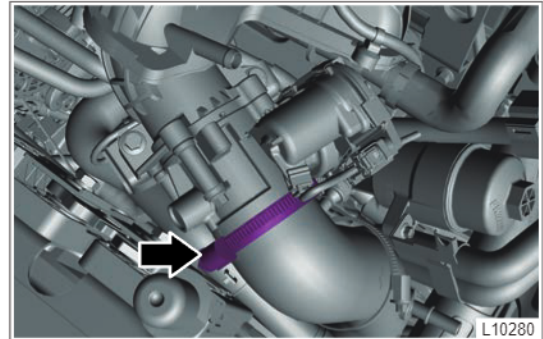
7.4 Electronic Throttle

■ Removal

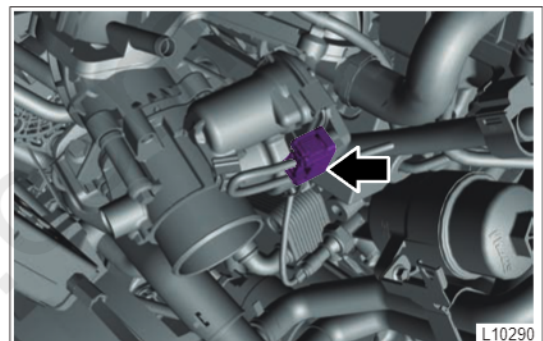
⚠ Warning

- Temperature in engine compartment is very high when engine is running. Before removal, you must make sure that engine has shut off, and engine compartment has cooled down sufficiently, otherwise, there is a risk of scald injury.
- Be sure to wear necessary safety equipment to prevent accidents, when removing electronic throttle.
- Appropriate force should be applied when removing electronic throttle. Be careful not to operate roughly.

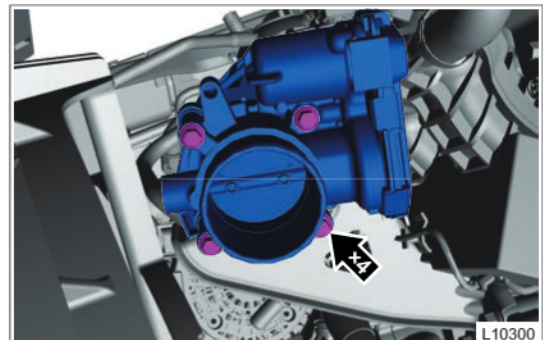
- (1) Turn off all electrical equipment and ENGINE START STOP switch.
- (2) Remove the engine compartment trim cover assembly.
- (3) Disconnect the negative battery cable.
- (4) Loosen worm clamp and disconnect the connection between electronic throttle and intercooler outlet pipe II.



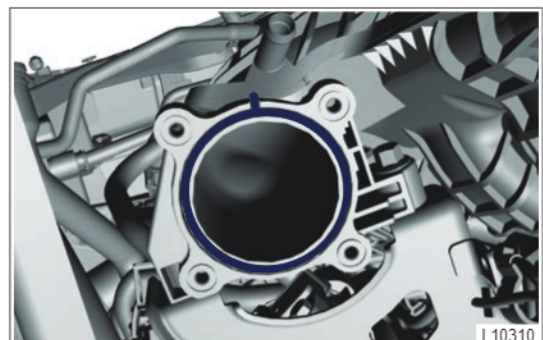
- (5) Disconnect the electronic throttle connector.



- (6) Remove 4 fixing bolts from electronic throttle.



- (7) Remove the electronic throttle assembly.
- (8) Remove electronic throttle gasket from intake manifold.



⚠ Caution

- After removing electronic throttle, block intake manifold intake port with suitable blocking pieces to prevent foreign matter from entering, causing damage to the components.

■ Throttle Cleaning

(1) Cleaning Tool

- Thin stick: Used to support throttle valve plate for cleaning the carbon deposited on contact wall between valve plate and throttle. Please use plastic, wooden or bamboo thin stick. Do not use metal thin stick to avoid scratching or deforming the valve plate.
- Clean cloth or paper towel.

■ Cleaning Process

- (1) Remove electronic throttle assembly, and make the valve plate face upward in free condition. Avoid cleaner flowing into electronic element through valve plate shaft, resulting in functional failure.
- (2) Apply appropriate amount of cleaner to the inner wall of throttle valve body, and wipe off the carbon with clean cloth.
- (3) Support the throttle valve plate with a thin stick, and clean the carbon on valve plate and throttle valve body inner wall.



- (4) Turn over the throttle 90°, and clean with the same procedures as above. Repeat several times until it is clean.
- (5) Push the valve plate by hand, and check if it rotates smoothly. If it is stuck, clean again according to the cleaning procedures.
- (6) After cleaning, wipe off the cleaner in throttle valve body with absorbent paper.

⚠ Warning

- Cleaner is a kind of flammable and corrosive fluid. Follow safety cautions to prevent accidents, and avoid skin contacting with cleaner.
- Pay attention to that the amount of cleaner should not be too much, so as to overflows into sensor and motor, resulting in functional failure.

■ Check electronic throttle

(1) Judgment methods for specific mechanical damage

- Valve plate should be in default position with power off and can rotate smoothly when flipping it by hand. If catching occurs, it indicates that internal components may be damaged.

(2) Perform the simple measurement for throttle internal sensor in following steps:

Step	Operation	Test Value	Test Result	Subsequent Step
1	Apply 5V direct current to terminal 3 (+) and 2 (-), close valve plate to full close manually, and measure voltages between terminals 5 and 2, and between terminals 6 and 2 with voltage band of multimeter. Voltage between terminals 6 and 2 is within 0.25 V and 0.75 V, voltage between terminals 5 and 2 is within 4.25 V and 4.75 V, and the sum of both voltages is about 5 V.	/	Yes	Next
		/	No	Replace throttle body
2	Apply 5V direct current to terminal 3 (+) and 2 (-), turn valve plate to full open manually, and measure voltages between terminals 5 and 2, and between terminals 6 and 2 with voltage band of multimeter. Voltage between terminals 6 and 2 is within 4.4V and 4.9V, voltage between terminals 5 and 2 is within 0.1V and 0.6V, and the sum of both voltages is about 5 V.	/	Yes	Next
		/	No	Replace throttle body
3	Turn the digital multimeter to ohm band, directly measure resistance of copper windings on DC motor between terminals 1 and 4. It is usually between 1.5 and 3.0 Ω at normal temperature, this value does not change with the valve plate opening.	/	Yes	Check wire harness or diagnostic help
		/	No	Replace throttle body

■ Electronic Throttle Learning Method

- (1) Perform throttle body self-learning once after installing electronic throttle body (turn ENGINE START STOP switch to ON and then to OFF after waiting for 30 seconds, and then perform ignition normally). Start vehicle and observe if it operates normally after self-learning is finished.

■ Installation

Caution

- Clean fitting surface of electronic throttle.
- Check if O-ring in the manifold fitting surface groove is in good condition has no damage.
- Perform electronic throttle self-learning procedures after installation.
- After self-learning is completed, start the vehicle and check for proper operation.

- (1) Install 4 fixing bolts to electronic throttle. Tighten in diagonally installation order.

Torque: 8 + 3 N·m

- (2) Connect intercooler outlet pipe, and tighten worm clamp.

Torque: 5 ± 1 N·m

- (3) Connect electronic throttle assembly connector.
- (4) Install the engine trim cover.
- (5) Install the engine compartment trim cover assembly.

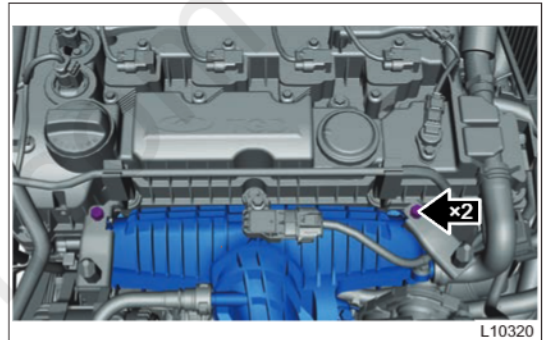
7.5 Intake Manifold Assembly

■ Removal

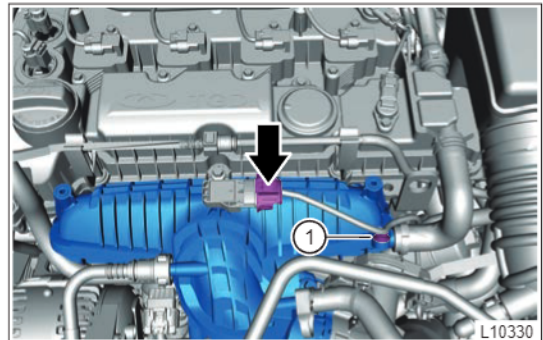
Warning

- **Be sure to wear safety equipment to prevent accidents, when removing intake manifold assembly.**
- **Appropriate force should be applied, when removing intake manifold assembly. Be careful not to operate roughly.**

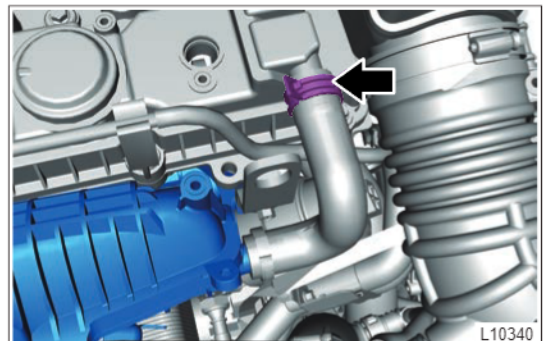
- (1) Turn off all electrical equipment and ENGINE START STOP switch.
- (2) Remove the engine compartment trim cover assembly.
- (3) Disconnect the negative battery cable.
- (4) Remove the engine trim cover.
- (5) Remove the intake hose assembly.
- (6) Remove the air filter assembly.
- (7) Remove 2 fixing bolts and engine hood cover bracket.



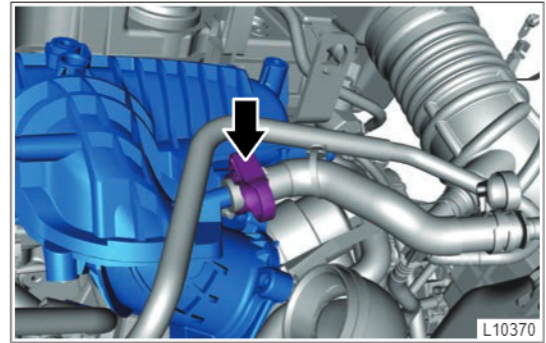
- (8) Disconnect the intake pressure sensor connector and disengage wire harness fixing clip (1).



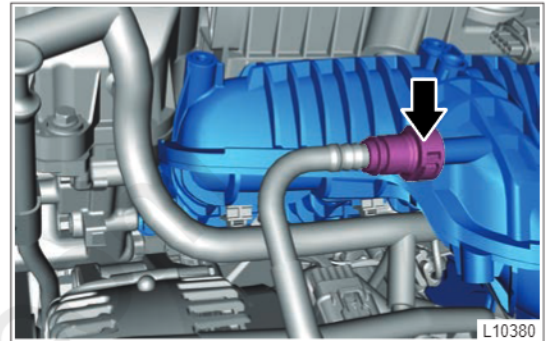
- (9) Remove the electronic throttle assembly.
- (10) Loosen the elastic clamp and disconnect connection between hose and cylinder head cover.



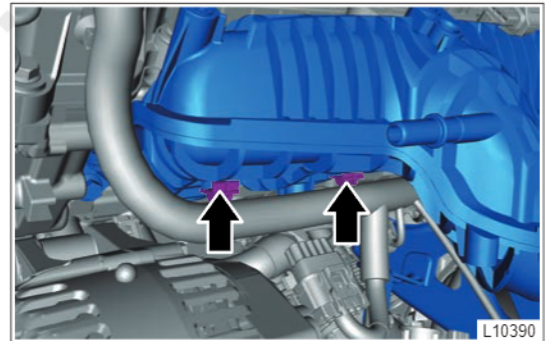
- (11) Loosen elastic clamp and disconnect the connection between vacuum pipe and intake manifold assembly.



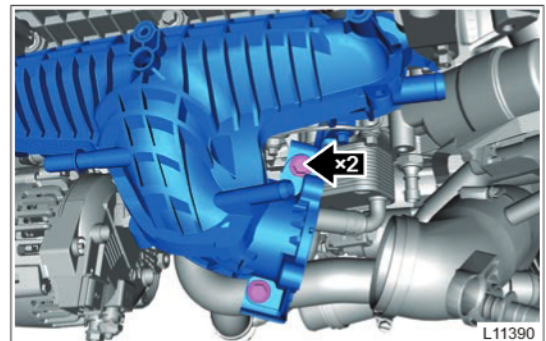
- (12) Disconnect the connection between charcoal canister solenoid valve outlet pipe and intake manifold assembly.



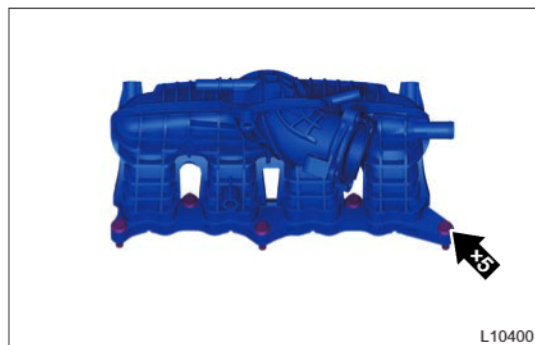
- (13) Disconnect fixing clip from engine electronic injection wire harness.



- (14) Remove 2 fixing bolts from intake manifold assembly and mounting bracket.



(15) Remove 5 fixing bolts from intake manifold assembly.



(16) Remove the intake manifold assembly.

■ Inspection

- (1) Clean and check contact surface between intake manifold assembly and cylinder head. If warpage on surface is greater than 0.8 mm, replace intake manifold assembly.
- (2) Check the appearance of intake manifold assembly for damage and cracks.
- (3) Check the intake manifold gasket, and replace if it is deteriorated or damaged.

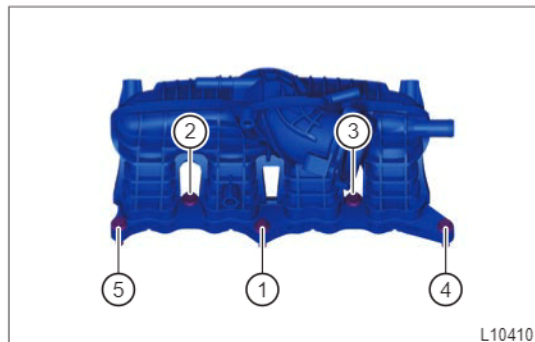
■ Installation

⚠ Caution

- Before assembly, visually check that intake manifold surface is free of collision, and the sealing rings on the flange surface of the intake manifold are free of mistakes, omissions, damages, lodging etc.

- (1) Install and tighten 5 fixing bolts on intake manifold assembly in order shown in illustration.

Torque: $20 \pm 5 \text{ N}\cdot\text{m}$



- (2) Install 2 fixing bolts on intake manifold bracket.

Torque: $20 \pm 5 \text{ N}\cdot\text{m}$

- (3) Install the engine electronic injection wire harness fixing clip.
- (4) Connect the charcoal canister solenoid valve outlet pipe.
- (5) Connect the vacuum tube.
- (6) Connect the hose and cylinder head cover.
- (7) Install intake pressure sensor.
- (8) Connect the intake pressure sensor connector.
- (9) Install 2 fixing bolts to engine hood cover bracket.

Torque: $9 \pm 1.5 \text{ N}\cdot\text{m}$

7.6 Electronic Accelerator Pedal

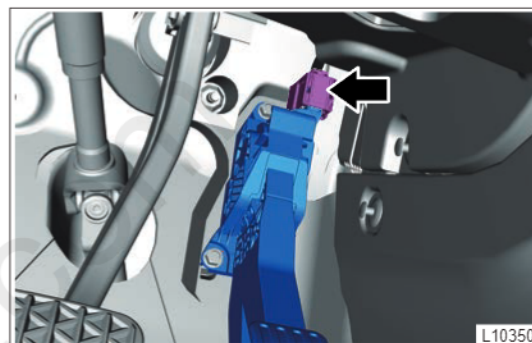
■ Removal

⚠ Warning

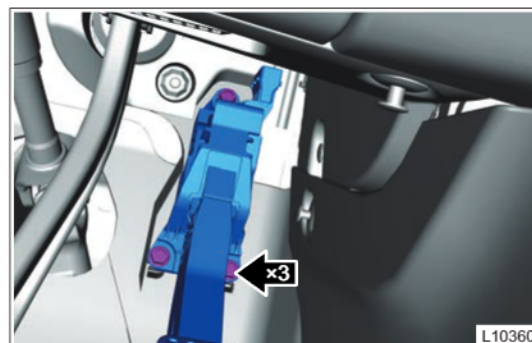
- Be sure to wear necessary safety equipment to prevent accidents, when removing electronic accelerator pedal.
- Appropriate force should be applied when removing electronic accelerator pedal. Be careful not to operate roughly.
- Try to prevent interior from being scratched during removal and installation.

- (1) Turn off all electrical equipment and ENGINE START STOP switch.
- (2) Disconnect the negative battery cable.

- (3) Disconnect the electronic accelerator pedal connector.



- (4) Remove of 3 fixing bolts from electronic accelerator pedal.



- (5) Remove the electronic accelerator pedal.

■ Inspection

- (1) Press the electronic accelerator pedal by hand, If it is stuck, it indicates that internal components may be damaged.

■ Installation

- (1) Install 3 fixing bolts on electronic accelerator pedal.
Torque: 3.5 ± 0.5 N·m
- (2) Connect the electronic accelerator pedal connector.

7.7 Intercooler Assembly

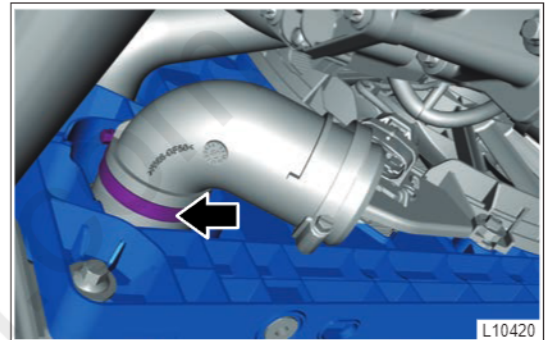
■ Removal

Warning

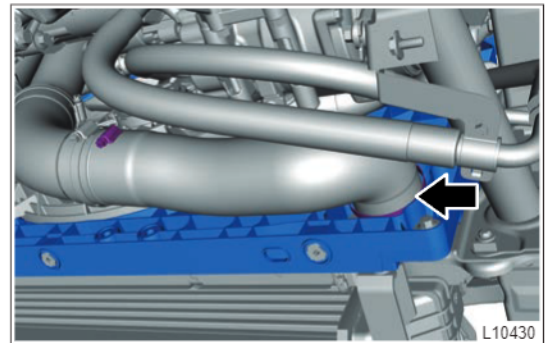
- **Be sure to wear safety equipment to prevent accidents, when removing intercooler assembly.**
- **Appropriate force should be applied, when removing the intercooler assembly. Be careful not to operate roughly.**

- (1) Turn off all electrical equipment and ENGINE START STOP switch.
- (2) Disconnect the negative battery cable.
- (3) Remove the engine compartment lower protector assembly.
- (4) Remove the front bumper assembly.
- (5) Remove the air deflector assembly.

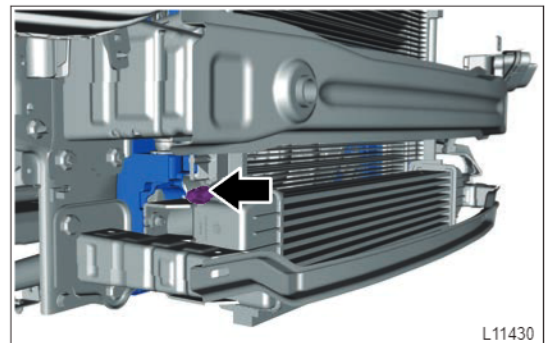
- (6) Loosen worm clamp and disconnect the connection between intercooler intake pipe and intercooler.



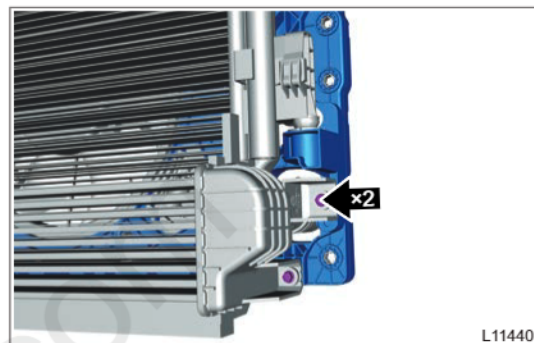
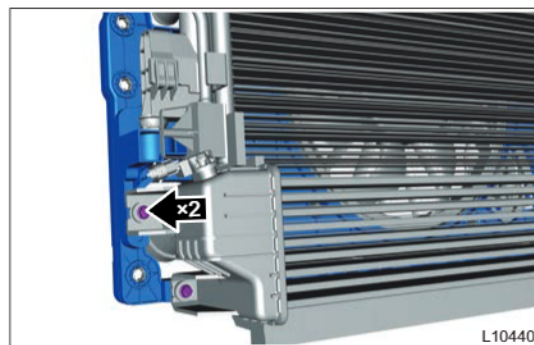
- (7) Loosen worm clamp and disconnect the connection between intercooler outlet pipe and intercooler.



- (8) Disconnect the boost pressure sensor connector.



- (9) Remove 4 fixing bolts from intercooler assembly.



- (10) Carefully remove the intercooler assembly.

■ Cleaning

- (1) Exterior cleaning: Use a water gun with a low pressure to spray water from top to bottom and from left to right at an angle perpendicular to the intercooler plane. Never flush the intercooler at an angle, it will damage the intercooler.
- (2) Interior cleaning: Fill the intercooler with water solution containing 2% soda ash at 80 °C. After waiting for half an hour, check for leaks. Replace intercooler as necessary. If not, shake it back and forth several times, and then pour out the sewage. Then fill with water solution containing 2% soda ash again until it is washed out. Increase water temperature to 90 °C properly at the last washing. Wash out with same method and water solution.

■ Installation

- (1) Install 2 fixing bolts on intercooler assembly.
- (2) Connect intercooler intake pipe, and tighten worm clamp after aligned and connected.
Torque: $5 \pm 1 \text{ N}\cdot\text{m}$
- (3) Connect intercooler outlet pipe 1, and tighten worm clamp after aligned and connected.
Torque: $5 \pm 1 \text{ N}\cdot\text{m}$

⚠ Caution

- The connection clearing between rubber pipe and plastic should not exceed 3 mm.

- (4) Install air deflector assembly.
- (5) Install front bumper assembly.
- (6) Install front compartment lower protector assembly.

7.8 Intercooler Intake Pipe Assembly I

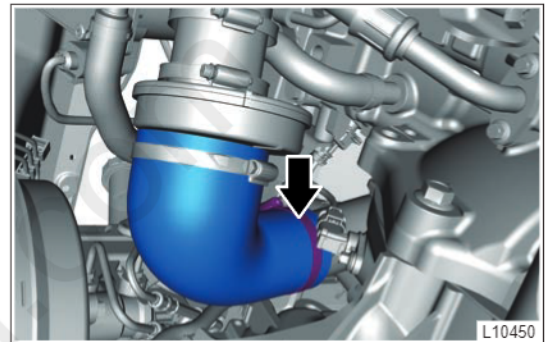
■ Removal

⚠ Warning

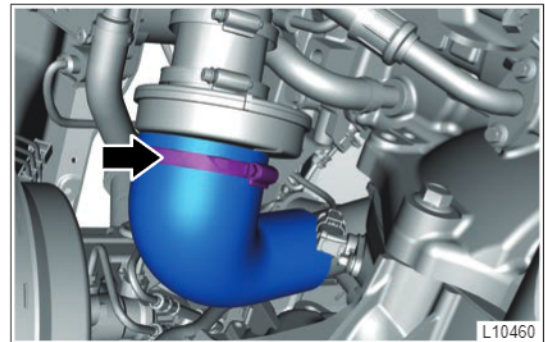
- **Be sure to wear safety equipment to prevent accidents, when removing intercooler intake pipe assembly I .**
- **Appropriate force should be applied, when removing the intercooler intake pipe assembly I . Be careful not to operate roughly.**

- (1) Turn off all electrical equipment and ENGINE START STOP switch.
- (2) Remove the engine compartment trim cover assembly.
- (3) Remove the intake hose assembly.
- (4) Raise the vehicle to a proper position.

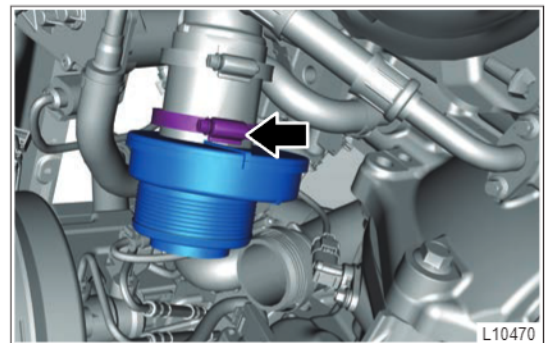
- (5) Loosen worm clamp and disconnect the connection between intercooler intake pipe assembly II and intercooler intake pipe assembly I.



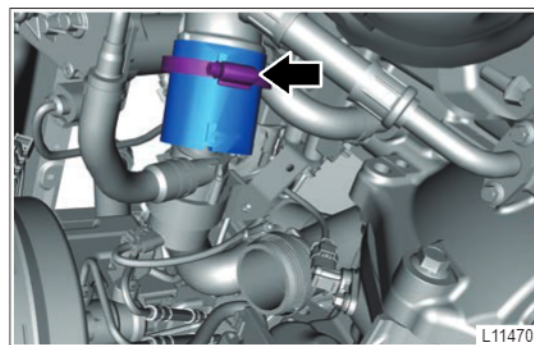
- (6) Loosen worm clamp and disconnect the connection between intercooler intake pipe assembly I and muffler, and remove intercooler intake pipe assembly I .



- (7) Loosen worm clamp, disconnect the connection between muffler and muffler hose, and remove muffler.



- (8) Loosen worm clamp, disconnect the connection between muffler hose, and remove muffler hose.



■ Inspection

- (1) Check the appearance of intercooler intake pipe assembly I for damage.
- (2) Check if the inner of intercooler intake pipe assembly I is dirty.

■ Installation

- (1) Connect muffler hose, and tighten worm clamp.
Torque: $5 \pm 1 \text{ N}\cdot\text{m}$
- (2) Install muffler hose, and tighten worm clamp.
Torque: $5 \pm 1 \text{ N}\cdot\text{m}$
- (3) Connect intercooler intake pipe assembly I, and tighten worm clamp.
Torque: $5 \pm 1 \text{ N}\cdot\text{m}$
- (4) Install the engine compartment trim cover assembly.
- (5) Install the engine trim cover.

7.9 Intercooler Intake Pipe Assembly II

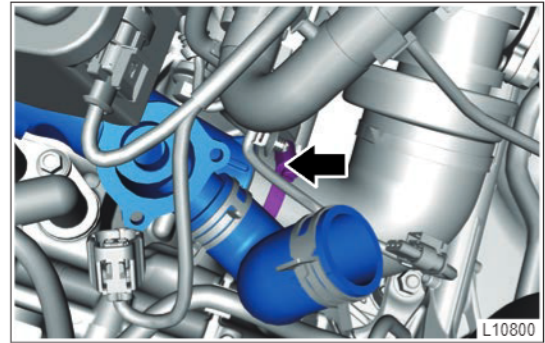
■ Removal

⚠ Warning

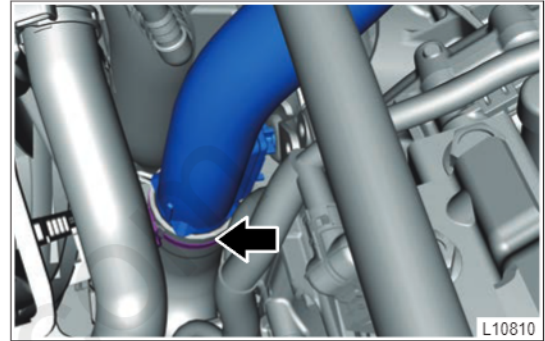
- Be sure to wear safety equipment to prevent accidents, when removing intercooler intake pipe assembly II.
- Appropriate force should be applied, when removing the intercooler intake pipe assembly II. Be careful not to operate roughly.

- (1) Remove the engine compartment trim cover assembly.
- (2) Turn off all electrical equipment and ENGINE START STOP switch.
- (3) Remove the battery assembly.
- (4) Remove the battery tray assembly.
- (5) Remove the intake hose assembly.
- (6) Remove the air filter assembly.

- (7) Loosen worm clamp and disconnect the connection between intercooler intake pipe assembly II and intercooler intake pipe assembly I.

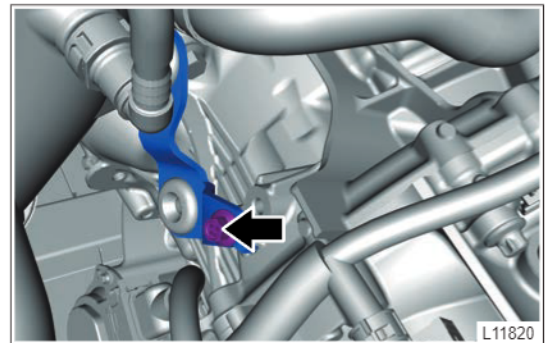


- (8) Loosen worm clamp and disconnect the connection between intercooler intake pipe assembly II and intercooler intake pipe assembly III.



- (9) Remove relief solenoid valve, and remove the intercooler intake pipe assembly II from bracket.

- (10) Remove 1 fixing bolt from intercooler intake pipe mounting bracket and remove intercooler intake pipe mounting bracket.



■ Inspection

- (1) Check the appearance of intercooler intake pipe II assembly for damage.
- (2) Check if the inner of intercooler intake pipe II assembly is dirty.

■ Installation

- (1) Install intercooler intake pipe bracket, tighten fixing bolt.

Torque: $20 \pm 2 \text{ N}\cdot\text{m}$

- (2) Install the intercooler intake pipe assembly II into proper position.

- (3) Connect intercooler intake pipe assembly I, and tighten worm clamp.

Torque: $5 \pm 1 \text{ N}\cdot\text{m}$

- (4) Connect intercooler intake pipe assembly III, and tighten worm clamp.

Torque: 5 ± 1 N·m

- (5) Install the battery tray assembly.
 (6) Install the battery assembly.
 (7) Install the intake hose assembly.
 (8) Install the air filter assembly.
 (9) Install the engine compartment trim cover assembly.

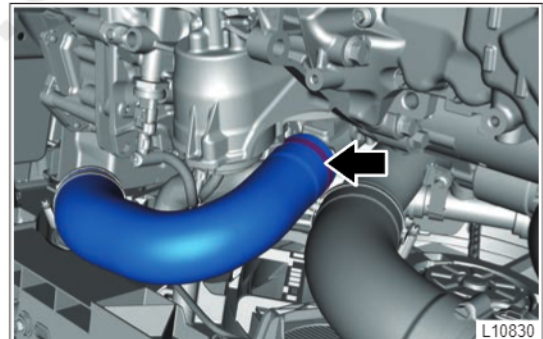
7.10 Intercooler Intake Pipe Assembly III

■ Removal

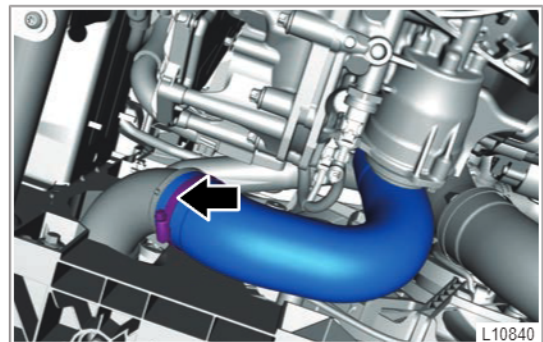
⚠ Warning

- **Be sure to wear safety equipment to prevent accidents, when removing intercooler intake pipe assembly III.**
- **Appropriate force should be applied, when removing the intercooler intake pipe assembly III. Be careful not to operate roughly.**

- (1) Raise the vehicle to a proper position.
 (2) Remove the engine compartment lower protector assembly.
 (3) Loosen worm clamp and disconnect the connection between intercooler intake pipe II and intercooler intake pipe III.



- (4) Loosen worm clamp and disconnect the connection between intercooler intake pipe assembly III and intercooler intake pipe.



- (5) Remove the intercooler intake pipe assembly III carefully.

■ Inspection

- (1) Check the appearance of intercooler intake pipe assembly III for damage.
 (2) Check if the inner of intercooler intake pipe assembly III is dirty.

■ Installation

- (1) Connect intercooler intake pipe assembly III and intercooler intake pipe assembly II, and tighten worm clamp.

Torque: $5 \pm 1 \text{ N}\cdot\text{m}$

- (2) Connect intercooler intake pipe and intercooler intake pipe assembly III, and tighten worm clamp.

Torque: $5 \pm 1 \text{ N}\cdot\text{m}$

- (3) Install the front compartment lower protector assembly.

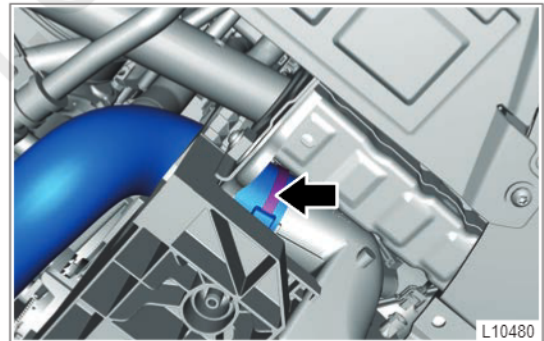
7.11 Intercooler Outlet Pipe Assembly I

■ Removal

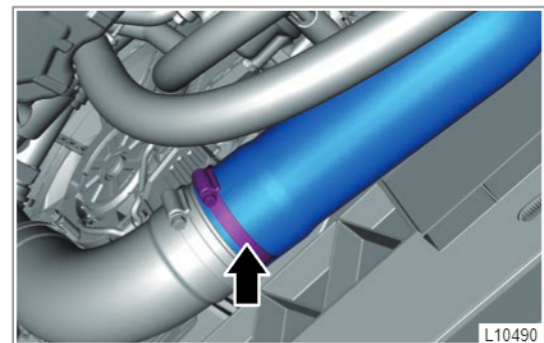
Warning

- **Be sure to wear safety equipment to prevent accidents, when removing intercooler outlet pipe assembly I.**
- **Appropriate force should be applied, when removing the intercooler outlet pipe assembly I. Be careful not to operate roughly.**

- (1) Raise the vehicle to a proper position.
- (2) Remove the engine compartment lower protector assembly.
- (3) Loosen worm clamp and disconnect the connection between intercooler outlet pipe assembly I and intercooler assembly.



- (4) Loosen worm clamp and disconnect the connection between intercooler outlet pipe assembly I and intercooler outlet pipe assembly II.



- (5) Remove the intercooler outlet pipe assembly I carefully.

■ Installation

- (1) After aligning and connecting intercooler outlet pipe assembly I and intercooler assembly, tighten worm clamp.

Torque: $5 \pm 1 \text{ N}\cdot\text{m}$

- (2) After aligning and connecting intercooler outlet pipe assembly I and intercooler outlet pipe assembly II, tighten worm clamp.

Torque: 5 ± 1 N·m

- (3) Install the front compartment lower protector assembly.

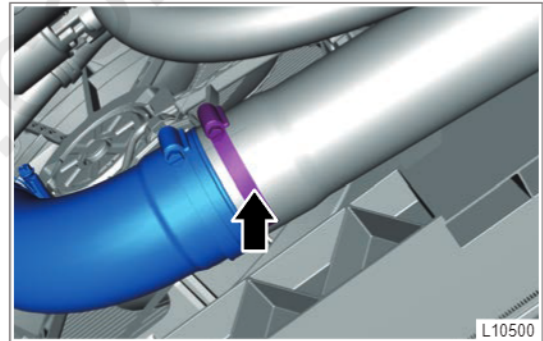
7.12 Intercooler Outlet Pipe Assembly II

■ Removal

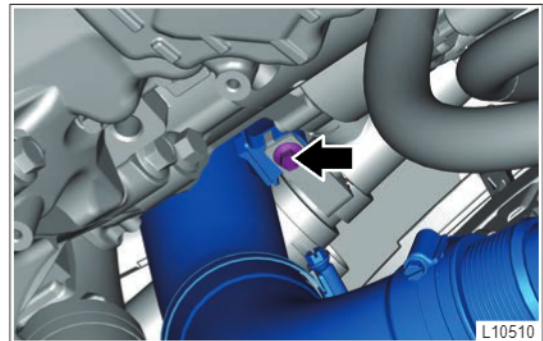
⚠ Warning

- **Be sure to wear safety equipment to prevent accidents, when removing intercooler outlet pipe assembly II.**
- **Appropriate force should be applied, when removing the intercooler outlet pipe assembly II. Be careful not to operate roughly.**

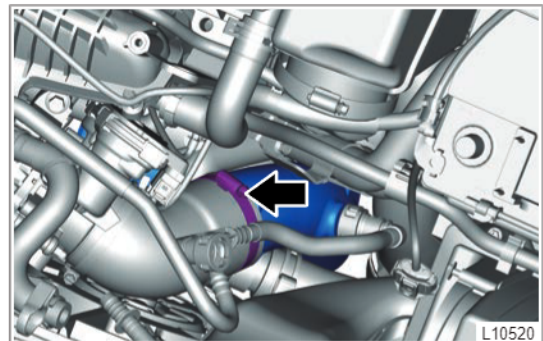
- (1) Remove the engine compartment trim cover assembly.
- (2) Remove the engine compartment lower protector assembly.
- (3) Remove the intake hose I assembly.
- (4) Loosen worm clamp and disconnect the connection between intercooler outlet pipe assembly II and intercooler outlet pipe assembly I.



- (5) Remove 1 fixing bolt from connecting bracket.



- (6) Loosen worm clamp and disconnect the connection between intercooler outlet pipe assembly II and intercooler outlet pipe assembly III.



■ Installation

- (1) Connect intercooler outlet pipe assembly II and intercooler outlet pipe assembly III, and tighten worm clamp.
Torque: $5 \pm 1 \text{ N}\cdot\text{m}$
- (2) Connect intercooler outlet pipe assembly II and intercooler outlet pipe assembly I, and tighten worm clamp.
Torque: $5 \pm 1 \text{ N}\cdot\text{m}$
- (3) Install 1 fixing bolt on connection bracket.
Torque: $20 \pm 2 \text{ N}\cdot\text{m}$
- (4) Install the front compartment lower protector assembly.

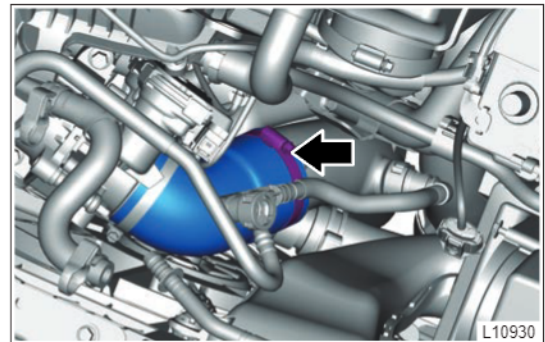
7.13 Intercooler Outlet Pipe Assembly III

■ Removal

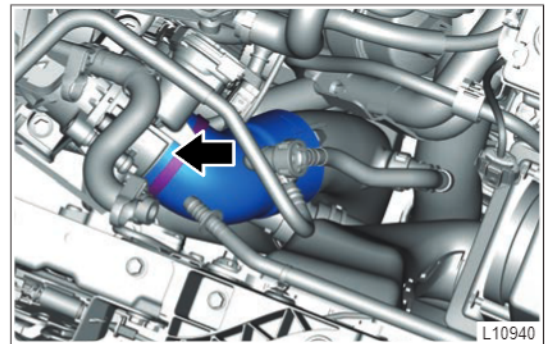
Warning

- **Be sure to wear safety equipment to prevent accidents, when removing intercooler outlet pipe assembly III.**
- **Appropriate force should be applied, when removing the intercooler outlet pipe assembly III. Be careful not to operate roughly.**

- (1) Remove the engine compartment trim cover assembly.
- (2) Remove the intake hose I assembly.
- (3) Loosen worm clamp and disconnect the connection between intercooler outlet pipe assembly II and intercooler outlet pipe assembly III.



- (4) Loosen worm clamp and disconnect connection between intercooler outlet pipe assembly III and electronic throttle.



■ Installation

- (1) Connect intercooler outlet pipe assembly III and electronic throttle, and tighten worm clamp.

Torque: 5 ± 1 N·m

- (2) Connect intercooler outlet pipe assembly II and intercooler outlet pipe assembly III, and tighten worm clamp.

Torque: 5 ± 1 N·m

- (3) Install the intake hose I assembly.

- (4) Install the engine compartment trim cover.

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