

SQR484F EMISSION CONTROL SYSTEM

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دیجیتال خودرو

شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

اولین سامانه دیجیتال تعمیرکاران خودرو در ایران



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دیجیتال خودرو

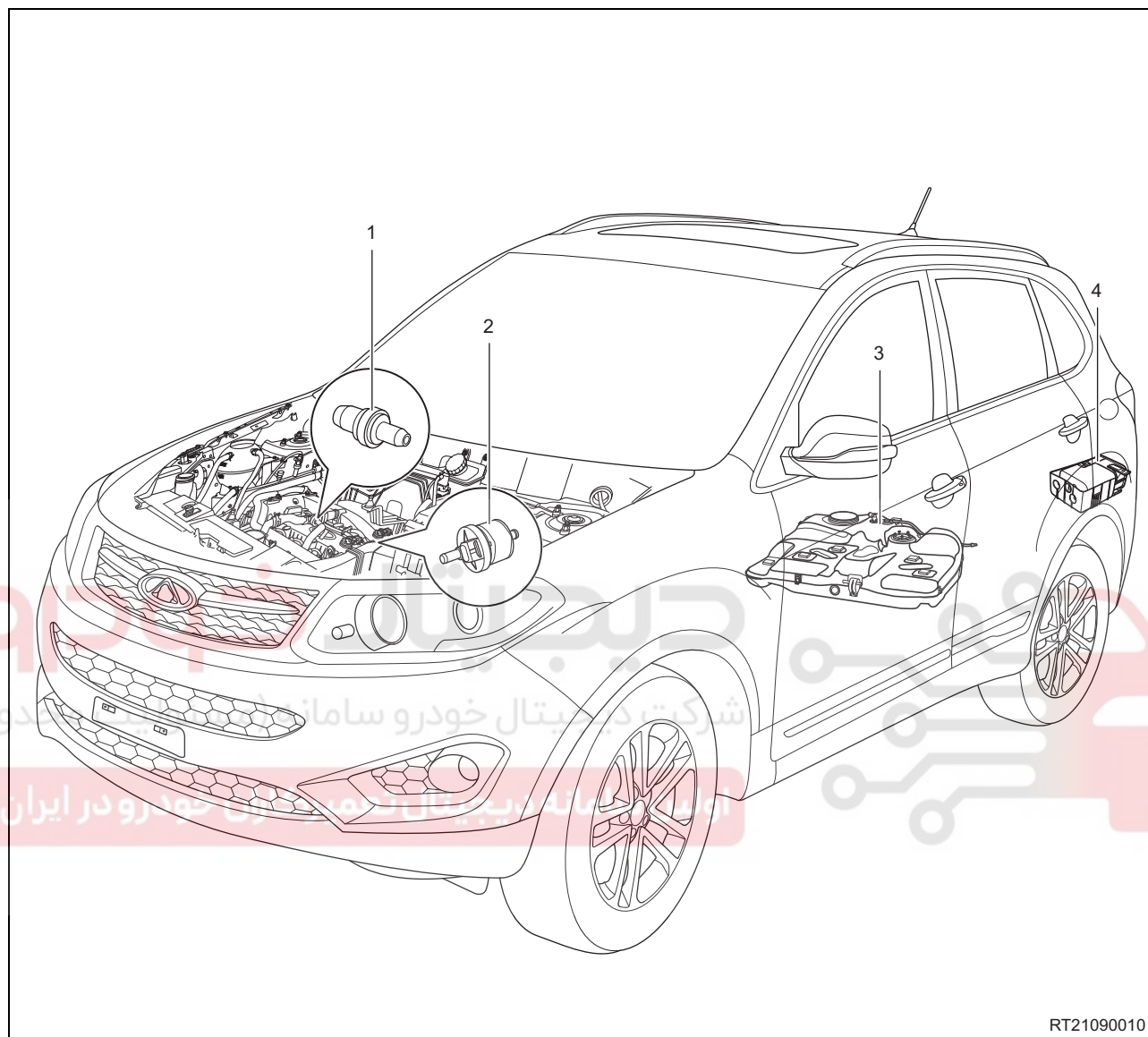
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GENERAL INFORMATION

Description



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RT21090010

1 - Fuel Tank Assembly	2 - Activated Charcoal Canister Solenoid Valve
3 - PCV Valve	4 - Activated Charcoal Canister Assembly

Emission control system recovers and burns fuel vapor to prevent the vapor in fuel tank from being discharged into the atmosphere. It monitors the oxygen content in exhaust gas, so as to guarantee the maximum efficiency of catalyst assembly in converting the HC, CO and NOx in exhaust gas.

Activated charcoal canister assembly plays an important role in the emission control system. The activated charcoal canister assembly can be used to absorb and filter moisture and fuel vapor. Fresh air enters the bottom of activated charcoal canister assembly while fuel vapor enters the top of activated charcoal canister through pipe. When engine stops operating, the fuel vapor and fresh air will be stored in the activated charcoal canister assembly. When canister solenoid valve opens, the fuel vapor will enter intake manifold to burn.

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Oxygen sensor consists of upstream oxygen sensor and downstream oxygen sensor. Upstream oxygen sensor is installed on the upper part of precatalytic converter assembly, and downstream oxygen sensor is installed on the lower part of precatalytic converter assembly. The oxygen sensor can detect the oxygen content in exhaust gas, and determine whether combustible air-fuel mixture is completely burnt out or not, so as to guarantee the maximum efficiency of catalyst assembly in converting the HC, CO and NOx in exhaust gas.

Specifications

Torque Specifications

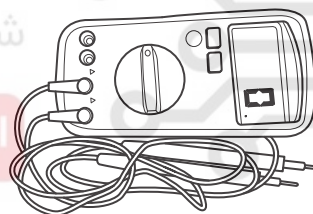
Description	Torque (N·m)
Activated Charcoal Canister Solenoid Valve Bracket Fixing Bolt	7 ± 1
Coupling Bolt Between Activated Charcoal Canister Assembly and Body	7 ± 1
Exhaust Manifold Heat Insulator Fixing Bolt	23 ± 2
Upstream Oxygen Sensor	40 - 60
Downstream Oxygen Sensor	40 - 60

Tool

General Tool

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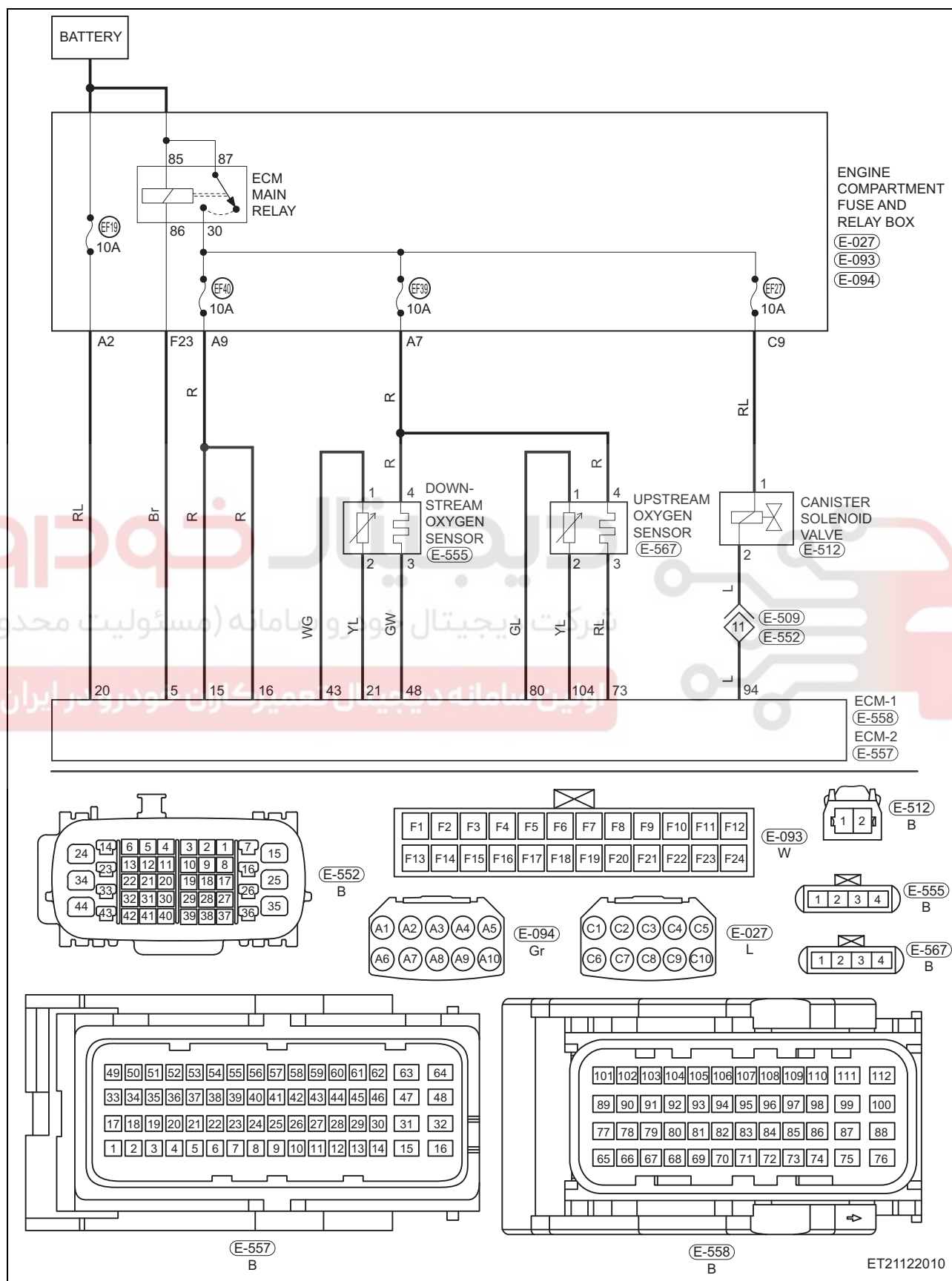
Digital Multimeter



RCH0000002

Circuit Diagram

Emission Control System



DIAGNOSIS & TESTING

Leakage Inspection

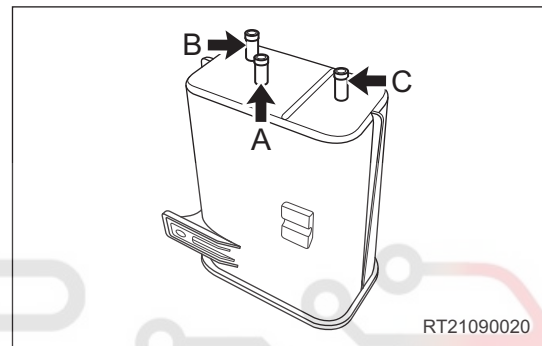
Visually check that hoses, connections and gaskets have no cracks, leaks or damage.

CAUTION

- Removal of engine oil dipstick, filler cap, PCV hose and other components or other problems in them may cause engine to run improperly.
- Air suction caused by disconnections, looseness or cracks in intake system pipes related with throttle assembly will result in engine failure or abnormal operation. Replace parts as necessary.

Activated Charcoal Canister Inspection

1. Close port C and blow compressed air into port A, check that air flows from port B. If result is not as specified, replace canister.
2. Close port C and blow compressed air into port B, check that air flows from port A. If result is not as specified, replace canister.



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Fuel Tank Cap Assembly Inspection

1. Visually check that fuel tank cap assembly is not deformed or damaged.
2. If result is not as specified, replace fuel tank cap assembly.

ON-VEHICLE SERVICE

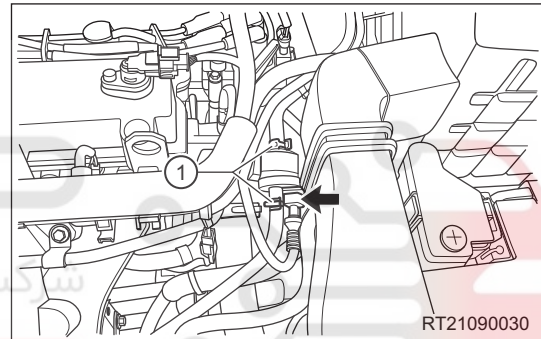
Activated Charcoal Canister Solenoid Valve and Bracket

Removal

CAUTION

- Be sure to wear necessary safety equipment when repairing to prevent accidents.
- Try to prevent body paint surface from being scratched during removal and installation.
- Before removal, mark fuel vapor pipe III assembly and outlet hose to avoid confusion.

1. Turn off all the electrical equipment and ignition switch.
2. Disconnect the negative battery cable.
3. Remove the engine trim cover assembly (See page 14-9).
4. Remove the activated charcoal canister solenoid valve.
 - a. Disconnect the canister solenoid valve connector (arrow).
 - b. Disengage the clamps (1) and disconnect both ends of canister solenoid valve from the hose.

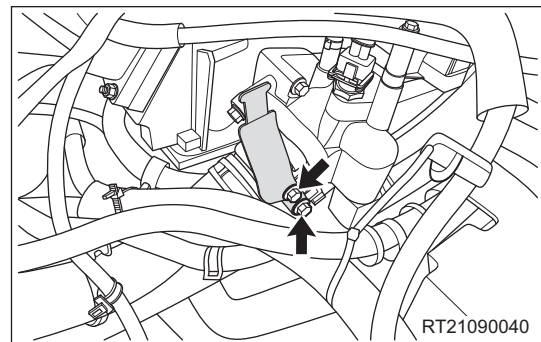


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CAUTION

- Positioning distance from hose end to clamp is 3 - 5 mm.

- c. Remove the canister solenoid valve from the bracket.
5. Remove the activated charcoal canister solenoid valve bracket.
 - a. Remove 2 fixing bolts (arrow) from the activated charcoal canister solenoid valve bracket, and remove the activated charcoal canister solenoid valve bracket. (Tightening torque: 7 ± 1 N·m)

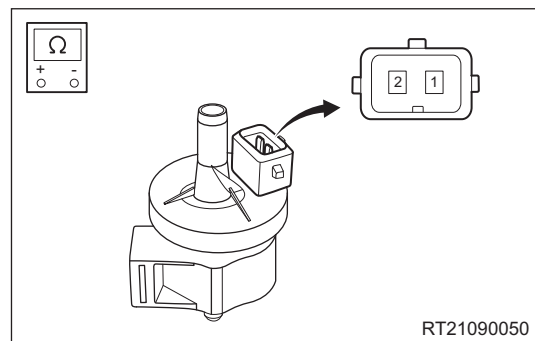


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Inspection

Measure resistance between 2 pins of canister solenoid with a digital multimeter.

Multimeter Connection	Measurement Temperature	Specification (Ω)
Terminal 1 - Terminal 2	20°C	26 $\pm$ 4

**Installation**

Installation is in the reverse order of removal.



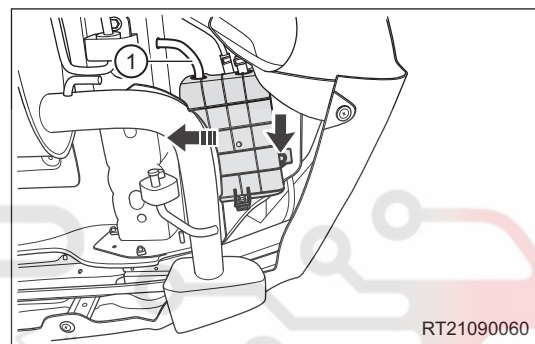
Activated Charcoal Canister Assembly

Removal

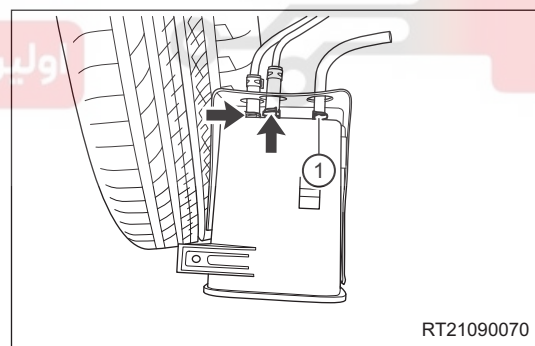
CAUTION

- Be sure to wear necessary safety equipment when repairing to prevent accidents.
- Try to prevent body paint surface from being scratched during removal and installation.
- Before removal, mark fuel vapor pipe II, fuel vapor pipe I and charcoal canister breather pipe to avoid confusion.

1. Turn off all the electrical equipment and ignition switch.
2. Disconnect the negative battery cable.
3. Raise the vehicle to the proper position.
4. Remove the activated charcoal canister assembly.
 - a. Pull out the charcoal canister breather pipe (1) from body hole.
 - b. Remove the coupling bolt (arrow) between activated charcoal canister assembly and body (Tightening torque: 7 ± 1 N·m)
 - c. Remove the activated charcoal canister assembly from body bracket in the direction of arrow as shown in the illustration.



- d. Loosen the elastic clamps (arrow), disconnect the connection between hose and activated charcoal canister assembly, and remove the activated charcoal canister assembly.
- e. Loosen the elastic clamp (1), remove the charcoal canister breather pipe from activated charcoal canister assembly.

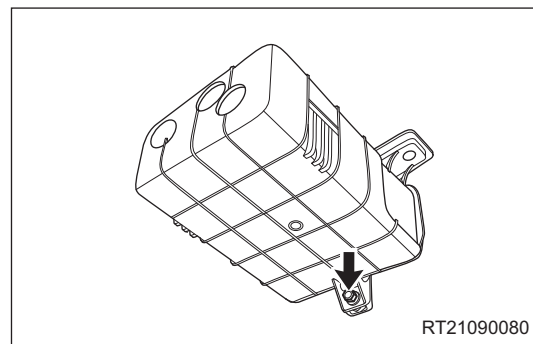


CAUTION

- Positioning distance from hose end to elastic clamp is 3 - 5 mm.

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- f. Remove the fixing nut (arrow), separate the activated charcoal canister assembly and activated charcoal canister protection box.



ENVIRONMENTAL PROTECTION

- Unneeded activated charcoal canister assembly should be handled by the specialized department according to local laws and regulations. Never discard it at will.

Installation

Installation is in the reverse order of removal.



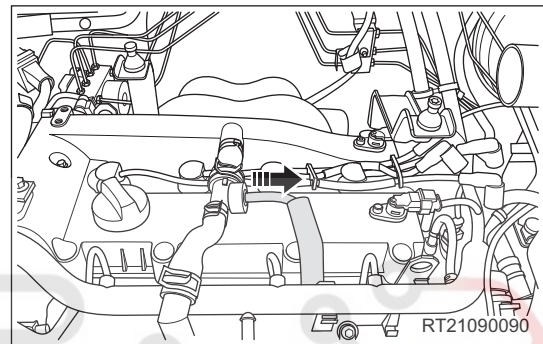
PCV Valve

Removal

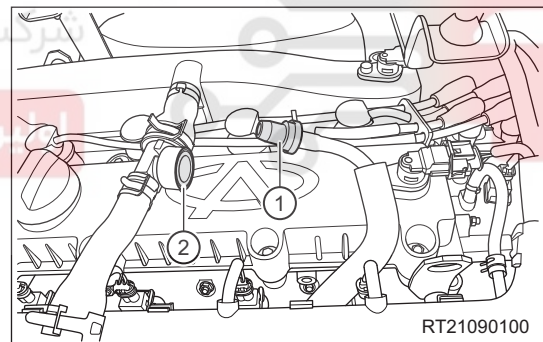
CAUTION

- Be sure to wear necessary safety equipment when repairing to prevent accidents.
- Try to prevent body paint surface from being scratched during removal and installation.

1. Turn off all the electrical equipment and ignition switch.
2. Disconnect the negative battery cable.
3. Remove the engine trim cover assembly (See page 14-9).
4. Remove the PCV valve.
 - a. Take out the pipe assembly with PCV valve assembly from PCV valve rubber boot in the direction of arrow as shown in the illustration.



- b. Remove the PCV valve (1) from line assembly.
- c. Remove the PCV valve rubber boot (2) from T-joint.



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Inspection

1. Install a clean hose to PCV valve.
2. Check PCV valve operation.
 - a. Blow air into the T-joint side, and check that air flows smoothly.

WARNING

- DO NOT suck air through valve. Petroleum substances inside the valve are hazardous to your health.

- b. Blow air into intake manifold side, and check that air flows difficultly.
If result is not as specified, replace PCV valve.

3. Remove the clean hose from PCV valve.

Installation

Installation is in the reverse order of removal.

CAUTION

- Press PCV valve rubber boot into T-joint, then press in the PCV valve.
- End surface of PCV valve larger diameter is flush with end surface of PCV valve rubber boot.



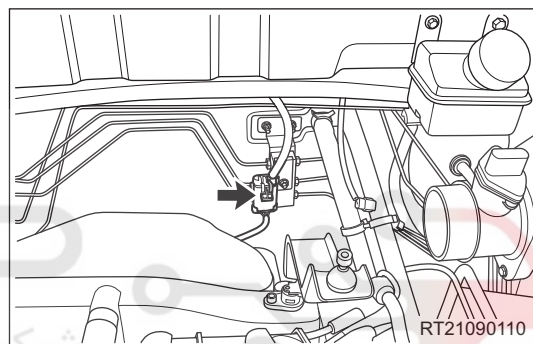
Upstream Oxygen Sensor

Removal

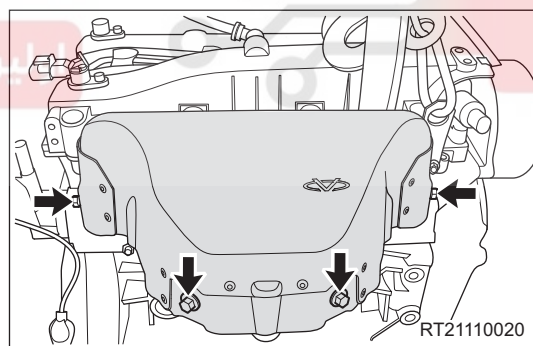
⚠ WARNING

- Temperature of exhaust system is very high when engine is running. Before removal and installation, you must make sure that the engine has stopped running; otherwise there is a risk of scald injury.
- Be sure to wear necessary safety equipment when repairing to prevent accidents.
- Try to prevent body paint surface from being scratched during removal and installation.

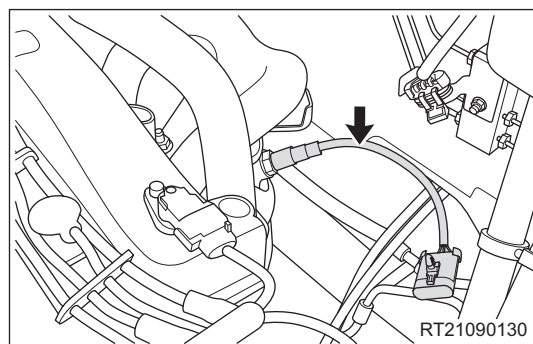
1. Turn off all the electrical equipment and ignition switch.
2. Disconnect the negative battery cable.
3. Remove the engine trim cover assembly (See page 14-9).
4. Remove the upstream oxygen sensor.
 - a. Remove and disconnect the upstream oxygen sensor connector (arrow) from bracket.



- b. Remove 4 fixing bolts (arrow) from exhaust manifold heat insulator, and remove the exhaust manifold heat insulator. (Tightening torque: $23 \pm 2 \text{ N}\cdot\text{m}$)



- c. Remove the upstream oxygen sensor (arrow) from precatlytic converter assembly. (Tightening torque: $40 - 60 \text{ N}\cdot\text{m}$)



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Inspection

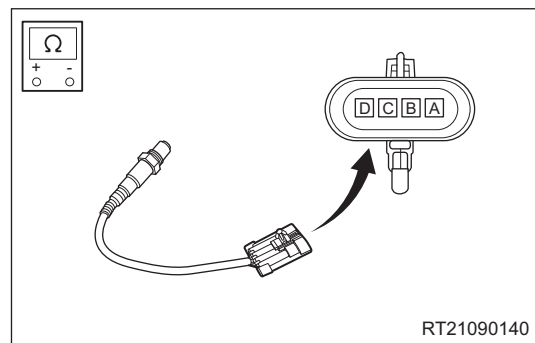
1. Measure resistance of upstream oxygen sensor with a digital multimeter.

Multimeter Connection	Condition	Specified Condition
Pin C - Pin D	20°C	7 - 11 Ω
Pin A - Pin B Pin A - Pin C Pin A - Pin D Pin B - Pin C Pin B - Pin D	Always	No continuity

If result is not as specified, replace upstream oxygen sensor.

Installation

Installation is in the reverse order of removal.



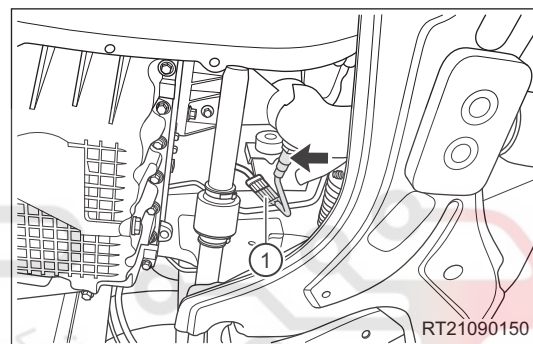
Downstream Oxygen Sensor

Removal

⚠ WARNING

- Temperature of exhaust system is very high when engine is running. Before removal and installation, you must make sure that the engine has stopped running; otherwise there is a risk of scald injury.
- Be sure to wear necessary safety equipment when repairing to prevent accidents.
- Try to prevent body paint surface from being scratched during removal and installation.

1. Turn off all the electrical equipment and ignition switch.
2. Disconnect the negative battery cable.
3. Raise the vehicle to the proper position.
4. Remove the downstream oxygen sensor.
 - a. Remove and disconnect the downstream oxygen sensor connector (1) from bracket.
 - b. Remove the downstream oxygen sensor (arrow) from precatalytic converter assembly.
(Tightening torque: 40 - 60 N·m)

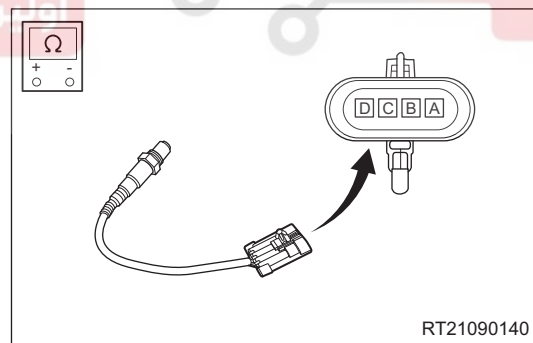


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Inspection

1. Measure resistance of downstream oxygen sensor with a digital multimeter.

Multimeter Connection	Condition	Specified Condition
Pin C - Pin D	20°C	7 - 11 Ω
Pin A - Pin B Pin A - Pin C Pin A - Pin D Pin B - Pin C Pin B - Pin D	Always	No continuity



If result is not as specified, replace downstream oxygen sensor.

Installation

Installation is in the reverse order of removal.

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