COOLING SYSTEM

1524-01/1524-07/1524-092112-01/2112-02/2130-01/ 2130-11/9210-05/

GENERAL INFORMATION

OVERVIEW AND OPERATING PROCESS

CONFIGURATION AND FUNCTION

REMOVAL AND INSTALLATION

COOLING SYSTEM 2112-01

GENERAL INFORMATION

1. SPECIFICATION

Description		Specification
Cooling system	Type	Water cooling, forced circulation
Coolant	Capacity	Approx. 8.0 ~ 8.5 L
Radiator	Core size	740W X 378.9H X 27T
	Flow type	Cross flow
Antifreeze	Type	SYC 1025 (LLC)
	Mixing ratio	50:50 (water:antifreeze)
Cooling fan module	Type	Electric
	Capacity	180 W + 120 W
	Control type	Series: low speed, Parallel: high speed
Coolant reservoir	Min. capacity	1.6 L
	Circulation	Closed roof type
	Pressure cap	Screw type, 1.4 bar
Thermostat	Type	Wax pallet type
	Opening temperature	90℃
	Fully open temperature	100℃
	Valve lift	8mm

2. INSPECTION

Problem	Possible Cause	Action
Coolant level is too low	- Leak from the radiator - Leak from the coolant auxiliary tank - Leak from the heater core	- Change the radiator - Change the coolant auxiliary tank - Change the heater
	- Leak from the coolant hose connections Damaged coolant hose -	- Reconnect the hose or replace the clamp - Change the hose
	- Leak from the water pump gasket - Leak from the water pump internal seal	- Change the gasket - Change the water pump
	- Leak from the water inlet cap - Leak from the thermostat housing	- Change the water inlet cap gasket Change the thermostat sealing -
	- Incorrect tightening torque of the cylinder head bolts - Damaged cylinder head gasket	- Tighten the bolts to the specified torque - Change the cylinder head gasket
Coolant temperature is too high	- Coolant leakage (Coolant level is low) Improper coolant mixture ratio - Kinked coolant hose -	- Add coolant - Check the coolant concentration (Anti-freeze) - Repair or replace the hose
	- Defective thermostat - Defective water pump - Defective radiator - Defective coolant auxiliary tank or tank cap	- Change the thermostat - Change the water pump - Change the radiator - Change the coolant auxiliary tank or tank cap
	- Cracks on the cylinder block or cylinder head - Clogged coolant passages in the cylinder block or cylinder head	- Change cylinder block or cylinder head - Clean the coolant passage
	- Clogged radiator core	- Clean the radiator core
	- Improper operation of cooling fan	- Replace the cooling fan or repair the related circuit
	- Defective temperature sensor or faulty wiring	- Replace the sensor or repair the related wiring

Modification basis	
Application basis	
Affected VIN	

Problem	Possible Cause	Action
Coolant temperature is too low	- Thermostat is stuck open	- Change the thermostat
	- Improper operation of cooling fan	- Replace the cooling fan or repair the related circuit
	- Defective temperature sensor or faulty wiring	- Replace the sensor or repair the related wiring

1) Coolant Level Check

A. Park the vehicle on level ground and apply the parking brake. Stop the engine and wait until it is cooled down. The coolant level should be between the MAX and MIN mark on the coolant reservoir. If the coolant level is below the "MIN" mark, immediately add coolant.

B.

CAUTION

- Scalding hot coolant and steam could be blown out under pressure, which could cause serious injury. Never remove the coolant reservoir cap when the engine and radiator are hot.
- Avoid any direct contact of the coolant to the painted body of the vehicle.

Modification basis	
Application basis	
Affected VIN	

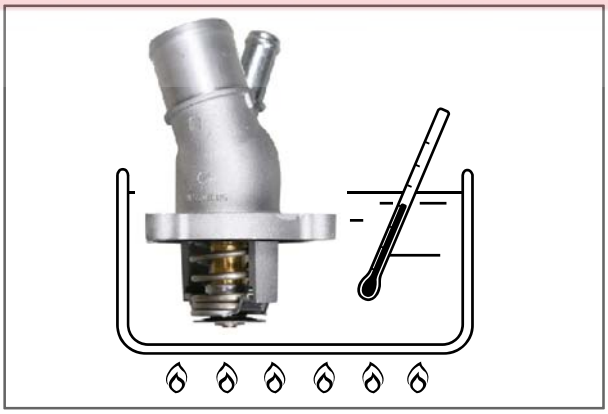
2) Leak Test

A. Release the pressure in the system by loosening the pressure cap of the coolant reservoir slightly. Then, remove the pressure cap completely.

CAUTION
Never open the cap until the coolant temperature becomes under 90℃ to prevent any burn.

B. Add the coolant so that the coolant level is between MAX and MIN mark on the coolant auxiliary tank.
C. Connect the tester to the tank filler and apply pressure (1.4 bar).
D. Check all the coolant hoses, pipes and connections for leaks when the pressure of the tester drops, and replace or tighten, if necessary.

3) Thermostat



Immerse the thermostat into the water. Heat the water and check the valve opening temperature.

Valve opening temperature	90±2℃

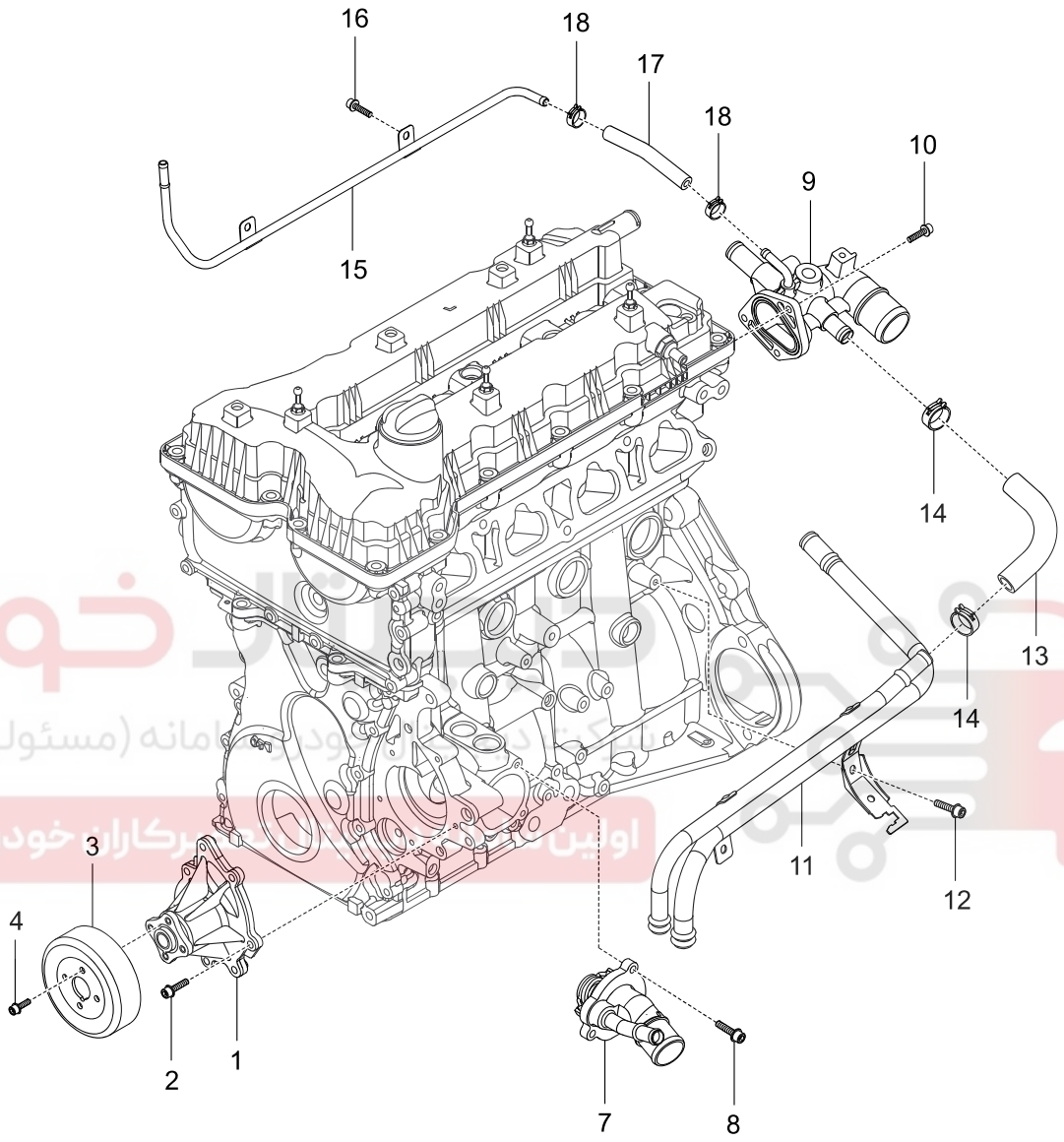
3. CAUTIONS

CAUTION

- If 100% of anti-freeze is added, the water pump vane can be damaged and thermal conductivity can be decreased resulting in poor circulation in the cooling system which leads to overheated engine.
- Use of non-recommended coolant could cause damage to the cooling system and overheating of the engine.
- Opening the coolant reservoir cap while the engine is running or hot can cause burns by hot steam or water.
- To open the coolant reservoir cap, wrap the cap with a wet towel or thick cloth after the engine is cooled down sufficiently.
- If cool water is added to the heated engine, the engine or radiator can be deformed.
- The anti-freeze in the coolant can damage the painted surface, so avoid the contact of the coolant to the painted body.
- The anti-freeze and water should be mixed in proper mixture ratio. Never add only water when adding coolant.
- If the anti-freeze content is too low, the coolant can be frozen while the engine can be overheated if anti-freeze content is too high.

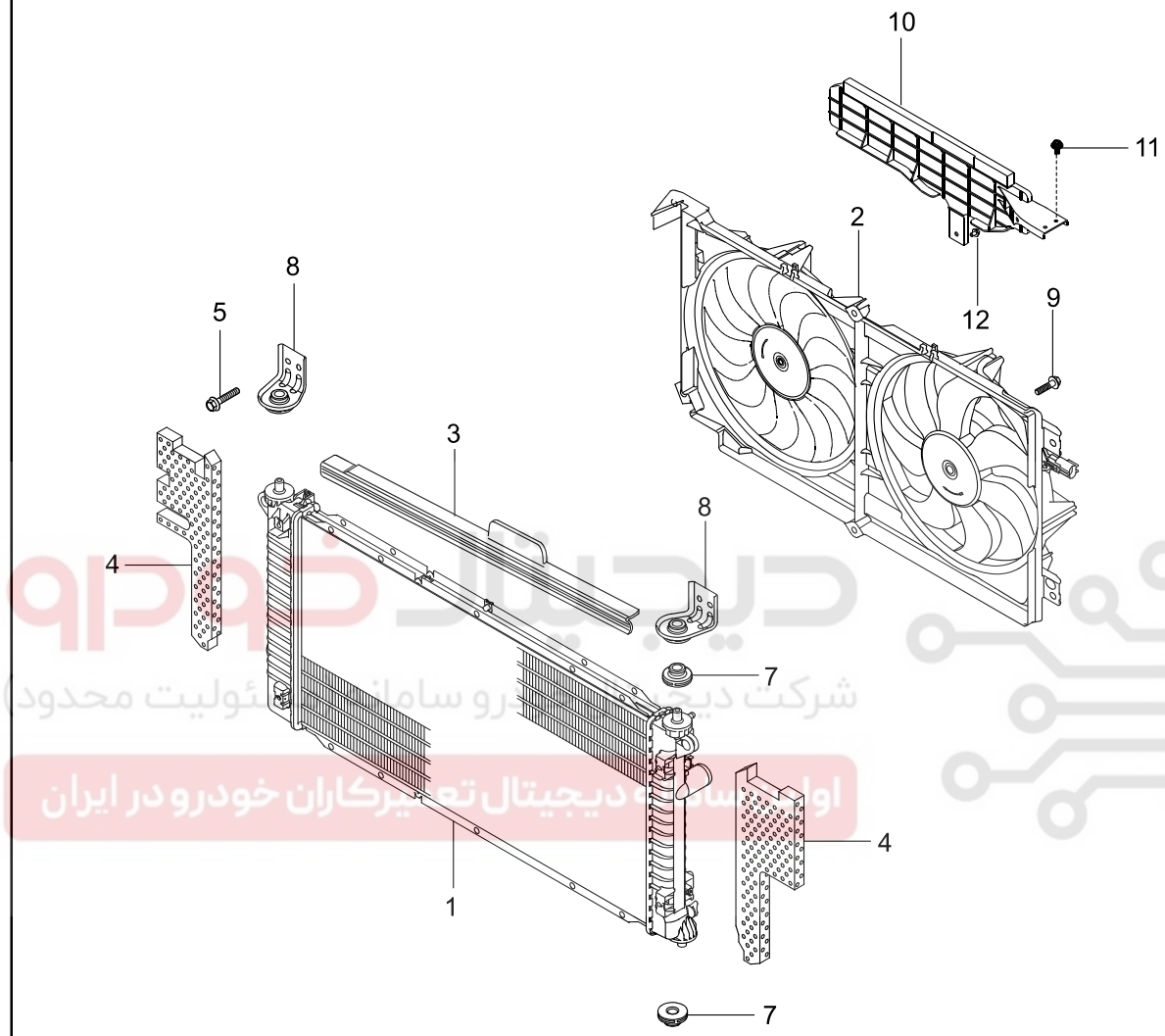
Modification basis	
Application basis	
Affected VIN	

4. LAYOUT



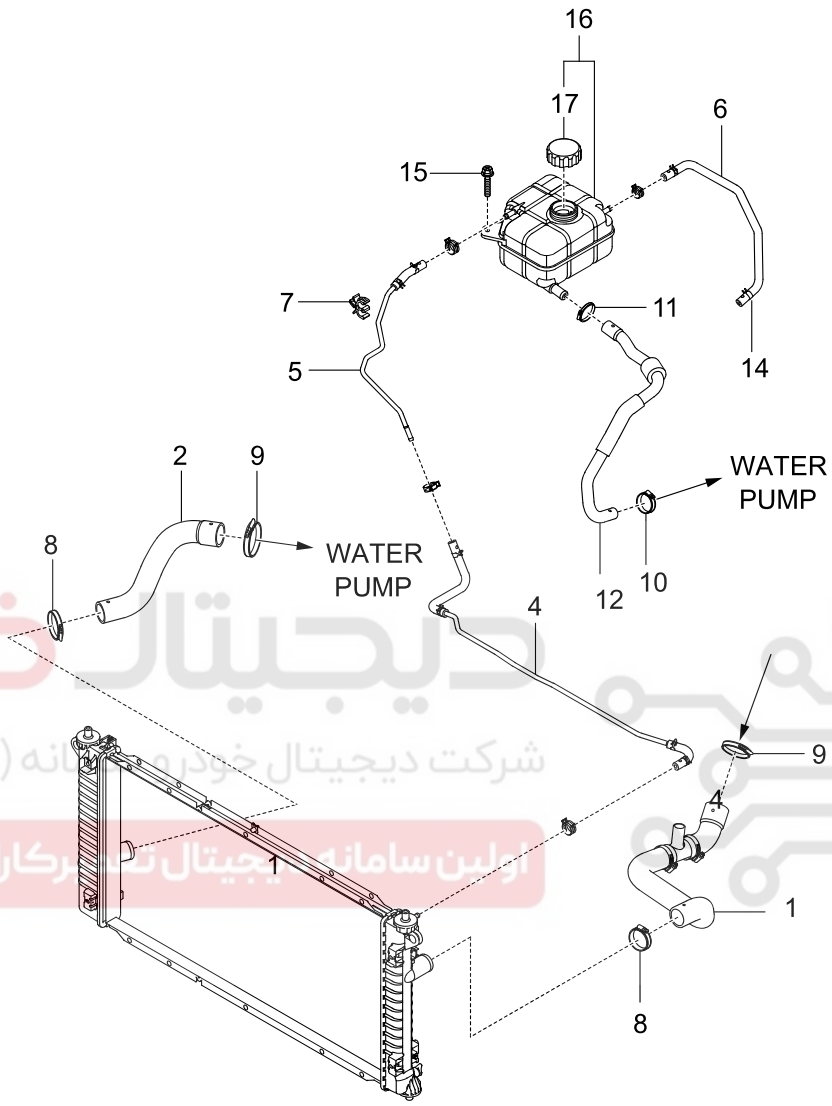
1. Water Pump Assy
2. Bolt
3. Water Pump Pulley
4. Bolt
7. Thermostat Assy
8. Bolt
9. Coolant Outlet Port Assy
10. Bolt
11. Coolant Pipe Assy
12. Bolt
13. Bypass Hose
14. Clamp
15. Deaeration Pipe Assy
16. Bolt
17. Bolt Deaeration Hose
18. Clamp

Modification basis	
Application basis	
Affected VIN	



1. Cooling Radiator Assy
2. Fan & Shroud Assy
3. Cover-Radiator
4. Seal Side
5. Screw
7. Insulator Module MTG LWR
8. Module MTG UPR Brkt Assy
9. Screw
10. Protector-Eroom Hot Air
11. Screw
12. Fastener

Modification basis	
Application basis	
Affected VIN	



1. Hose-Rad Inlet
2. Hose-Rad Outlet
3. Hose-Make Up
4. Hose Assy-Deaeration Rad
5. Hose Assy-Deaeration Rsvr
6. Hose Assy-Deaeration Eng
7. Clip-Deaeration Tube mtg
8. WDT_Spring_Clamp_M45
9. WDT_Spring_Clamp_M50
10. WDT_Clamp_M24
11. WDT_Clamp_M30
12. Clip_Closed_CT_M25
13. Bolt-Tapping
14. Clamp_Spring_M14
15. Screw
16. Tank Assy-Reservoir
17. Cap-Reservoir Tank

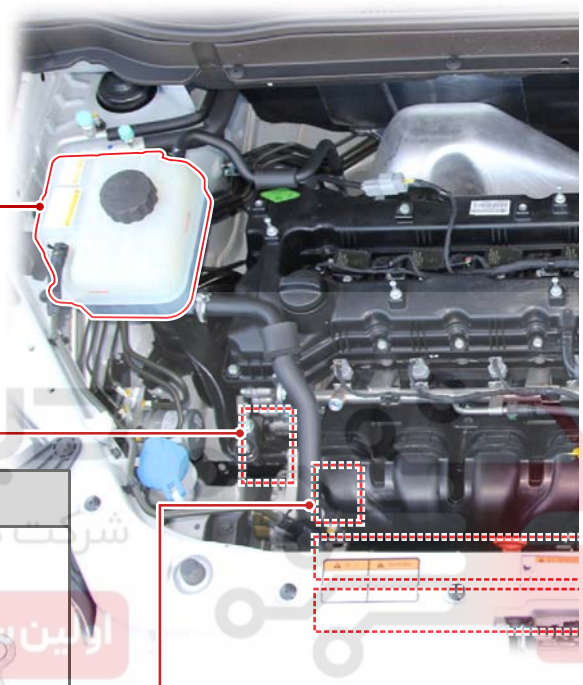
Modification basis	
Application basis	
Affected VIN	

OVERVIEW AND OPERATING PROCESS

1. OVERVIEW

The coolant system is to keep the engine temperature stable.

2. COMPONENTS

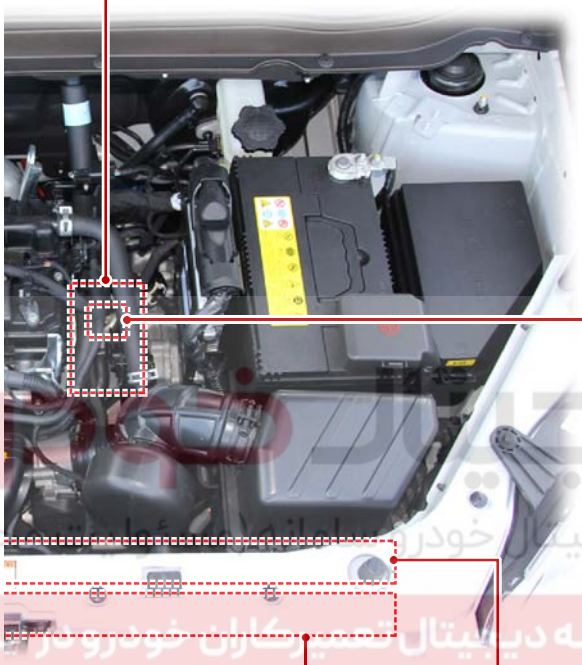


Coolant reservoir


Water pump	
	
The water pump is driven by the engine drive belt and supplies the coolant to each area of the engine.	

Thermostat	
	When the engine coolant reaches 90℃, the thermostat starts to open (fully open at 100℃) and lets the coolant flow to the radiator to maintain the engine temperature.

Modification basis	
Application basis	
Affected VIN	



Coolant outlet port

Coolant temperature sensor

Measures the coolant temperature and sends the result to the engine ECU.

Radiator

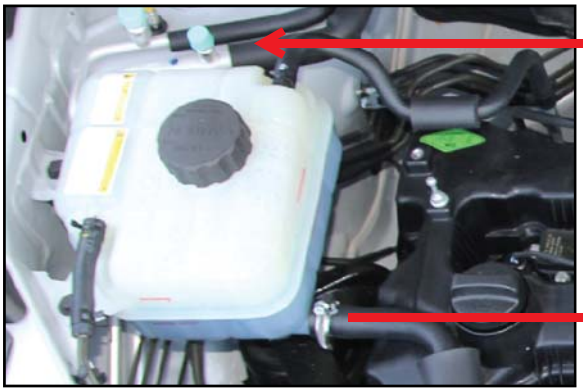
Radiates the heat through fins and cools down the hot coolant as the coolant passes through the tube of the radiator core.

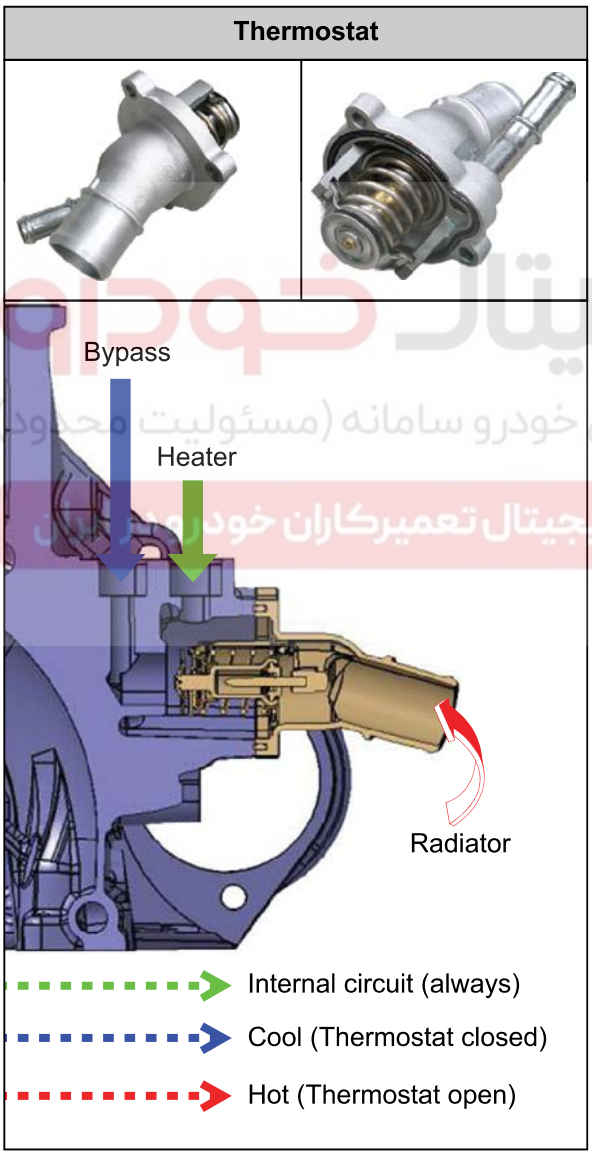
PWM fan

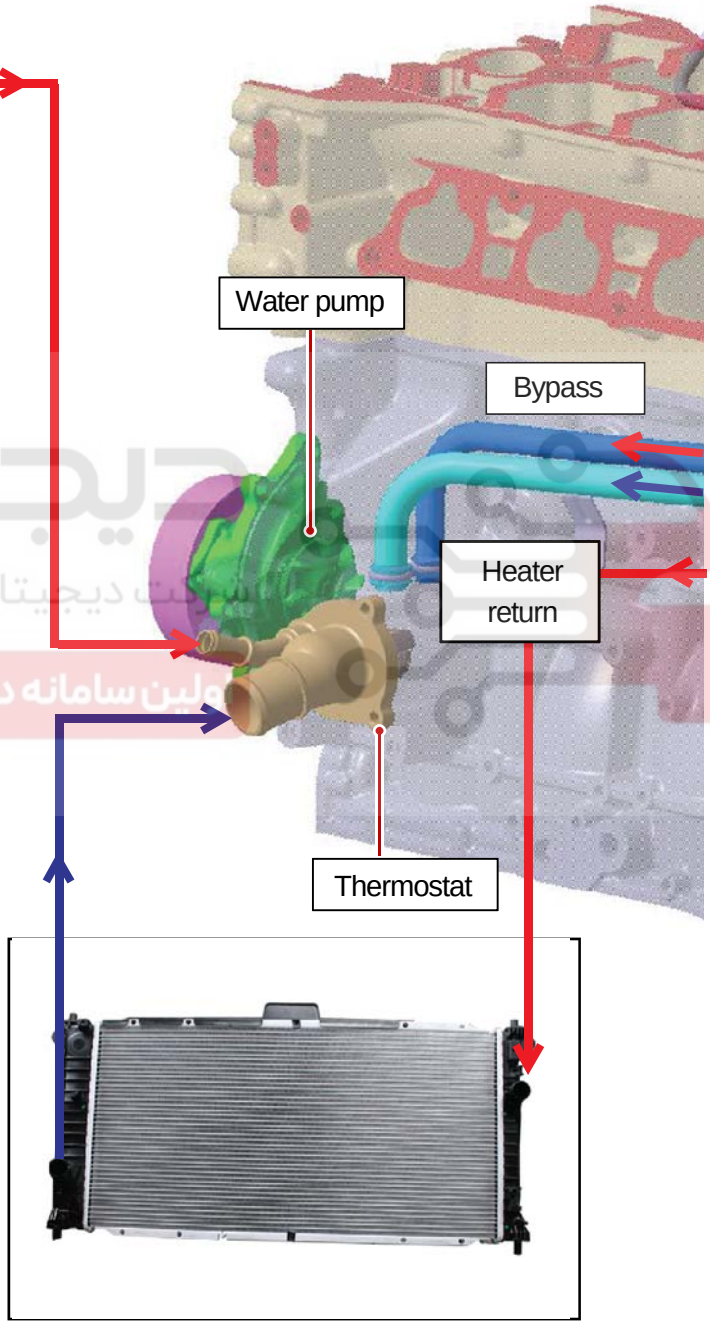
Circulates the fresh air forcibly to exchange heat with the radiator core fin.

Modification basis	
Application basis	
Affected VIN	

3. COOLANT FLOW DIAGRAM

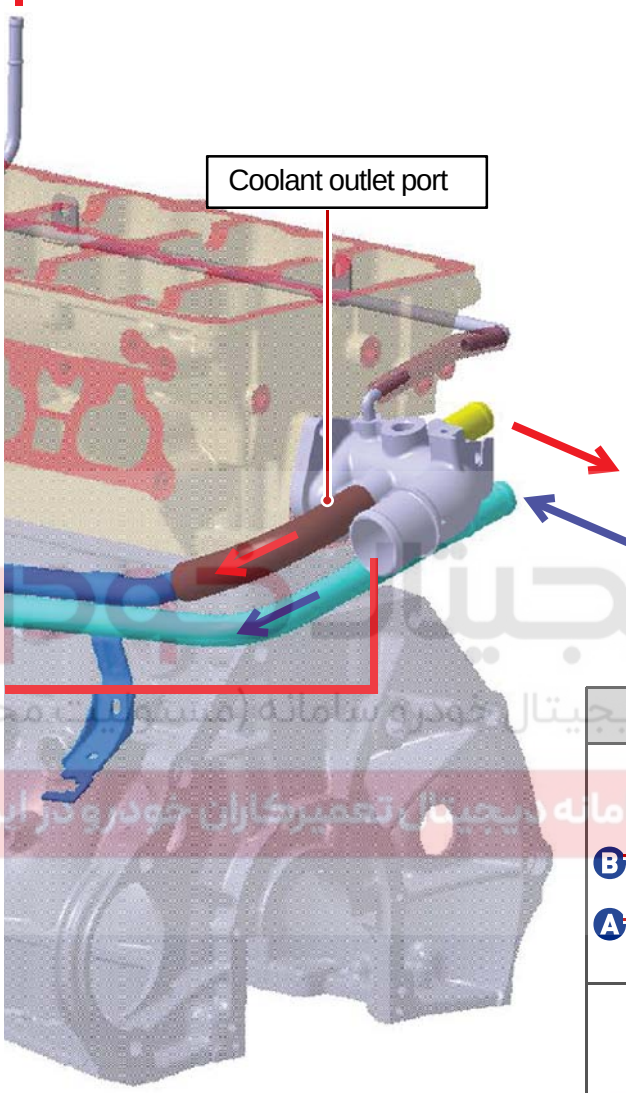




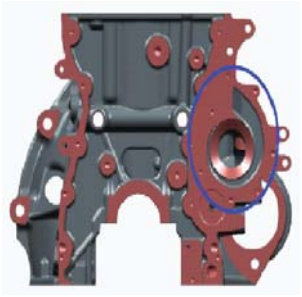


Modification basis	
Application basis	
Affected VIN	

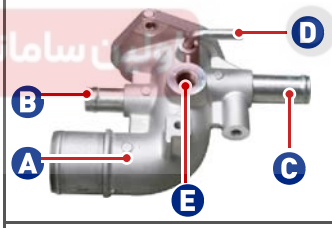
1

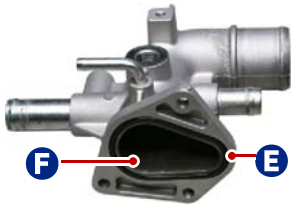


Water pump



Coolant outlet port





A: to radiator
B: to water pump (bypass) to cabin heater
C: to coolant reservoir
D: Coolant temperature
E: sensor mountinh boss from cylinder head
F: Gasket
G:

Modification basis	
Application basis	
Affected VIN	

CONFIGURATION AND FUNCTION

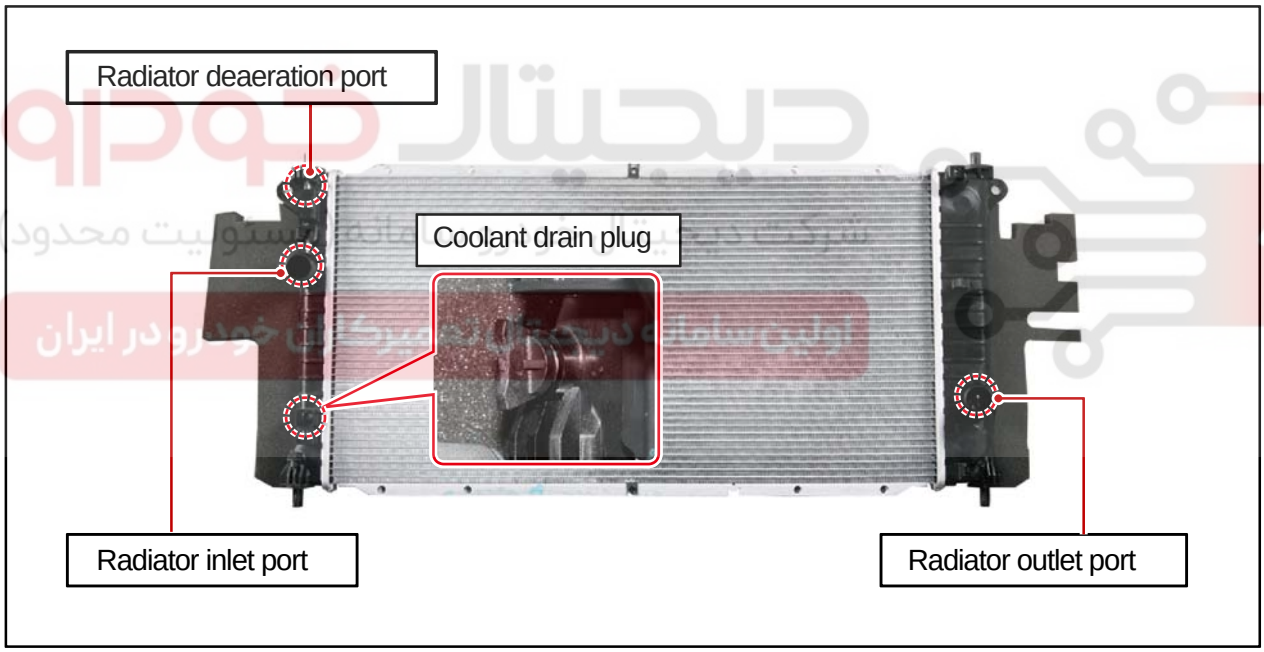
S.G.N. 2112-01 RADIATOR ASSEMBLY - COOLING

1) Overview

The coolant flows through the coolant passage in cylinder block and cylinder head and absorbs the heats from the engine. This hot coolant is cooled down by heat exchange in the radiator.

- This vehicle is equipped with a lightweight fin-tube type aluminum radiator. The fins are located on the outer surface of the radiator to transfer heat to ambient air.
- The coolant heat is transferred by the fins as the coolant passes through the tube of the radiator core. The coolant drain plug is located bottom of the radiator.
-

CAUTION
Be careful not to damage the core when servicing.



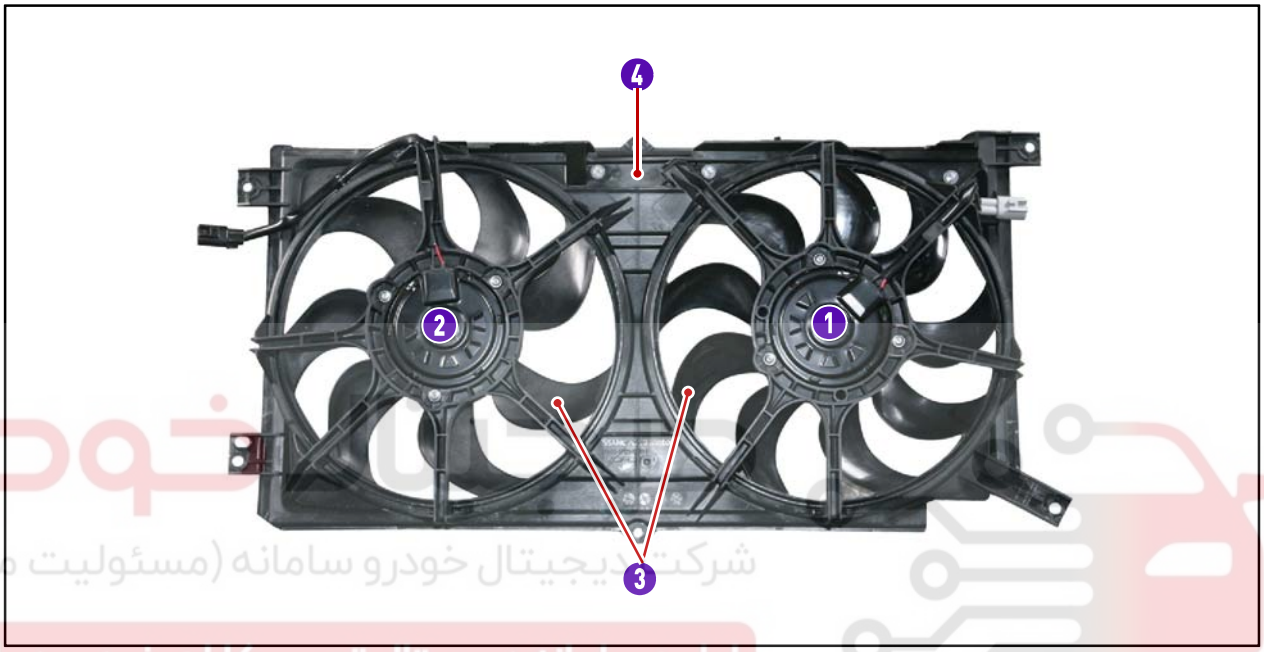
Modification basis	
Application basis	
Affected VIN	

S.G.N. 2112-02

FAN AND SHROUD

1) Overview

This assembly consists of 2 fans and 2 motors. The motors' capacities are 180 W and 120 W each. The coolant is circulated by the water pump and absorbs the heat generated by the running engine. Then it exchanges the heat with the air coming through the fan and shroud while passing the radiator.



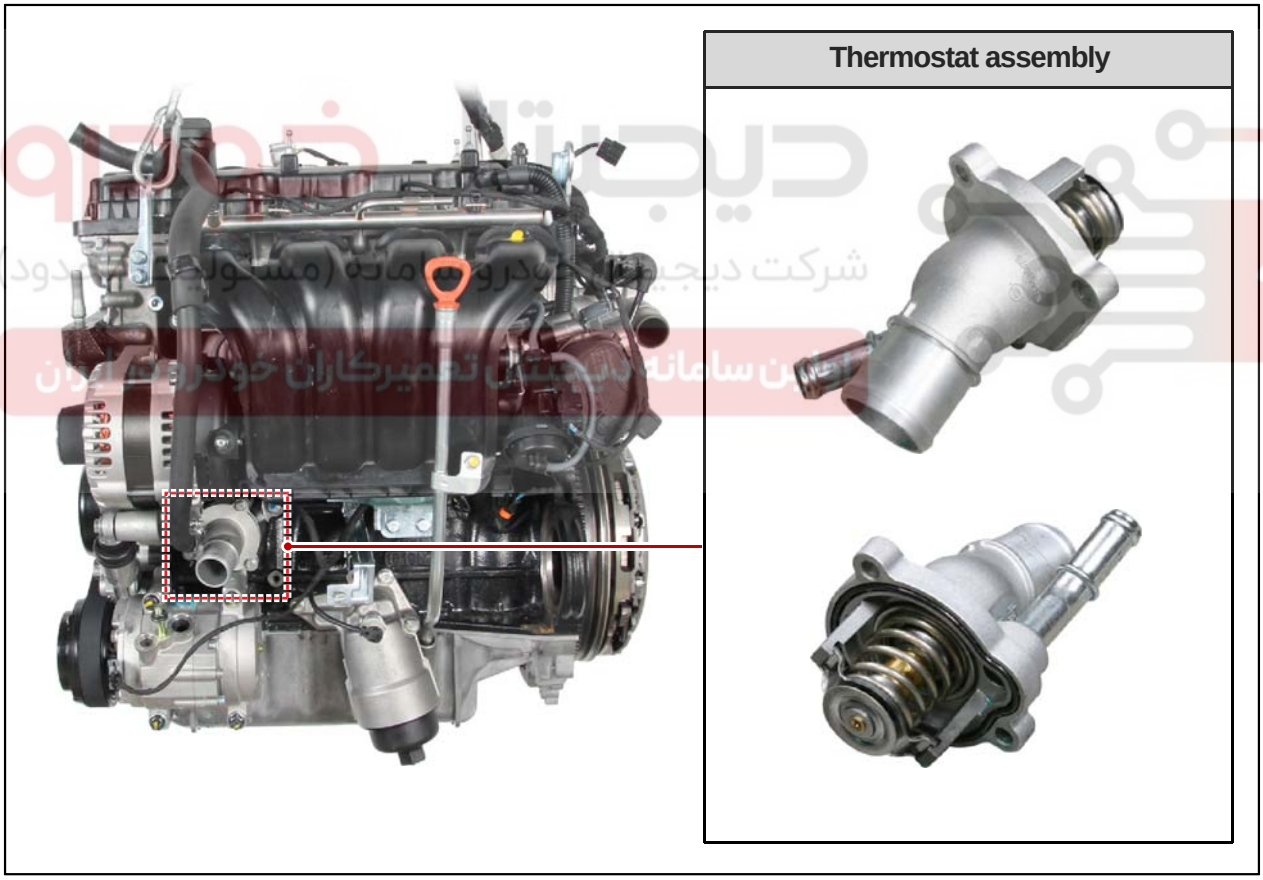
1. Motor, 120W
2. Motor, 180W
3. Fan blade
4. Shroud

Modification basis	
Application basis	
Affected VIN	

S.G.N.
1524-07 THERMOSTAT

1) Overview

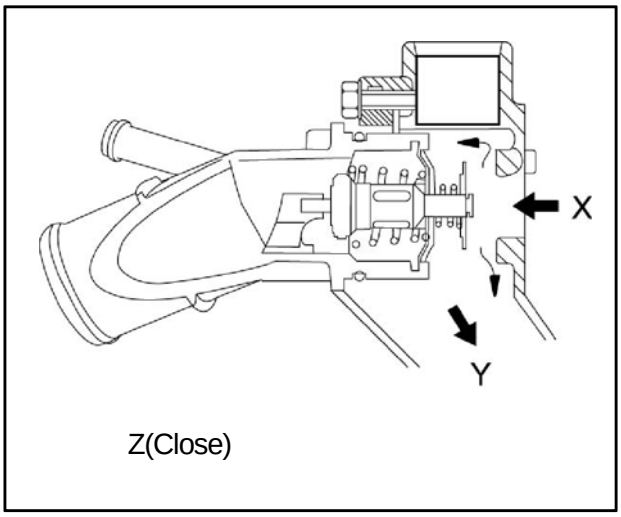
When the temperature of the coolant reaches the specified level, the thermostat begins to open and lets the coolant flows from the engine to the radiator. The hot coolant from the engine is cooled down as it flows through the radiator. The engine coolant temperature can be maintained within the specified level by these processes.
The wax pellet in the thermostat is sealed in a metal case. The wax element of the thermostat expands when it is heated and contracts when it is cooled down. As the wax pellet expands by the heat from the running engine, the thermostat opens the valve and the engine coolant flows to the radiator.
But if the wax pellet contracts by the low temperature of the coolant, the thermostat valve is closed and shuts off the coolant flows to the radiator.
The thermostat begins to open at 90℃ and is fully open at 100℃. It is fully closed when the coolant temperature drops below 85℃.



Modification basis	
Application basis	
Affected VIN	

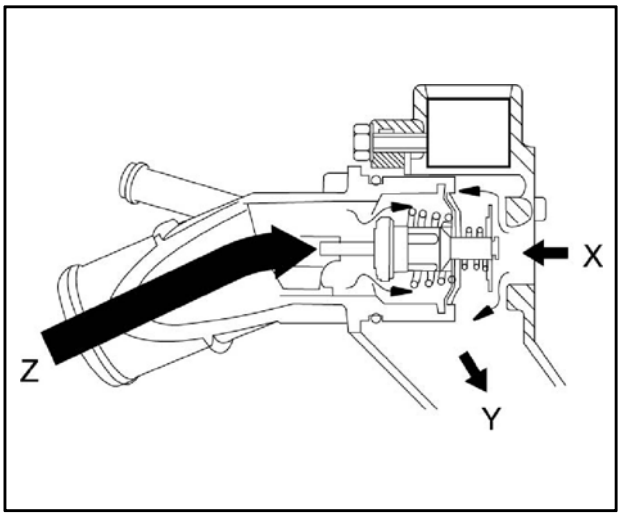
2) Operating Process

▶ When closed (up to 90°C)



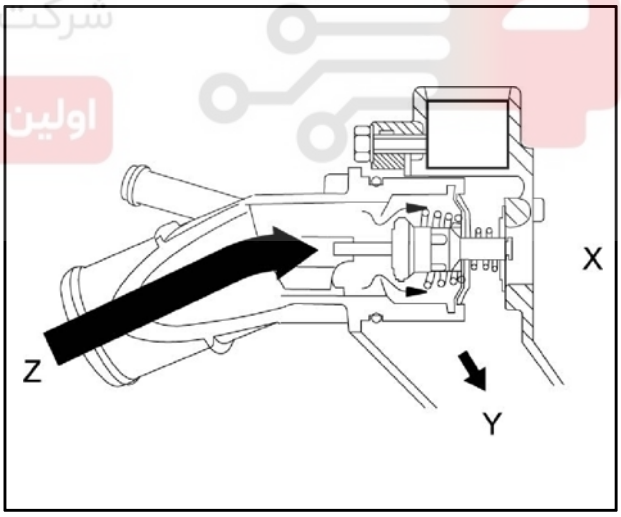
Z(Close)

▶ When partially open (90 to 100°C)



X: from coolant outlet port
Y: to water pump
Z: from radiator

▶ When fully open (over 100°C)



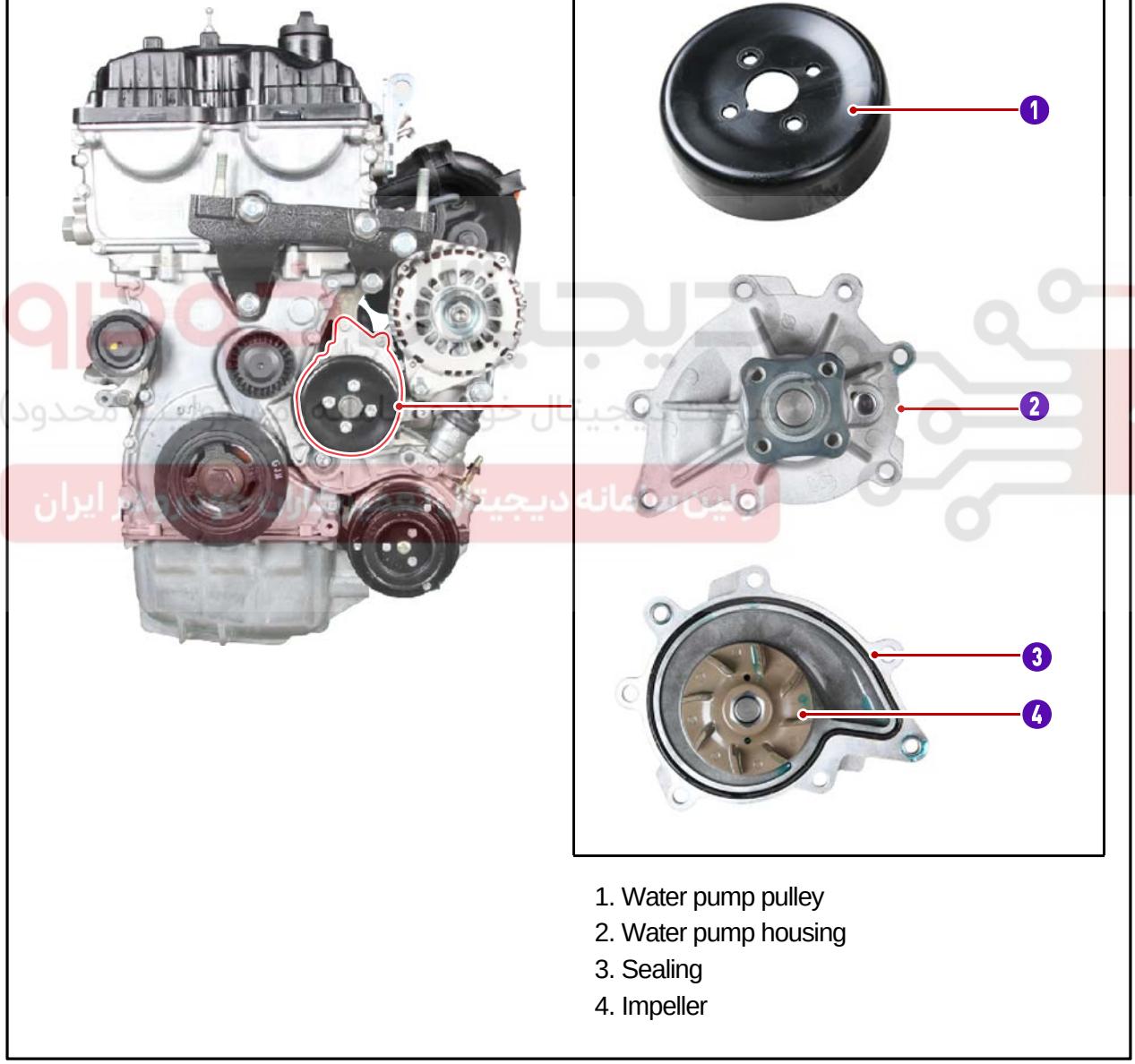
Modification basis	
Application basis	
Affected VIN	

S.G.N. 1524-01

WATER PUMP ASSEMBLY

1) Overview

The water pump assembly is installed to the cylinder block and driven by the engine drive belt. The pump is a centrifugal pump which consists of an impeller and drive shaft. The impeller is supported by a completely sealed bearing. So, the water pump cannot be disassembled and should be serviced as an assembly.



1. Water pump pulley
2. Water pump housing
3. Sealing
4. Impeller

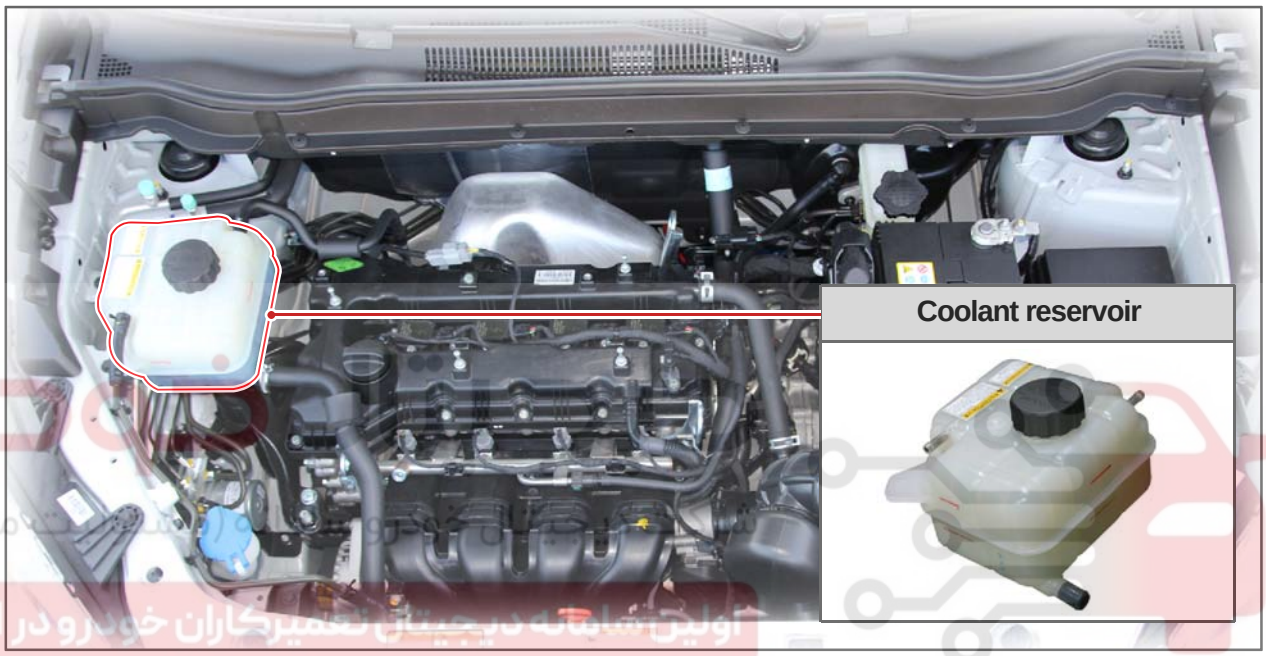
Modification basis	
Application basis	
Affected VIN	

S.G.N. 2130-11

TANK ASSY-RESERVOIR

1) Overview

The coolant reservoir is made of semitransparent plastic to determine the coolant level outside. To improve the cooling performance, the coolant reservoir separates and collects the air generated by circulated coolant in the circuit. And, the pressure cap on the reservoir keeps the high boiling point of coolant and prevents the loss of coolant. The coolant level should be between the MAX and MIN mark on the coolant reservoir when the engine is cooled down.



CAUTION

Scalding hot coolant and steam could be blown out under pressure, which could cause serious injury. Never remove the coolant reservoir cap when the engine and radiator are hot.

A from outlet port
B to thermostat
C from radiator

Modification basis	
Application basis	
Affected VIN	

S.G.N. 9210-05

ANTIFREEZE

1) Overview

The purpose of antifreeze is to prevent a rigid enclosure from undergoing catastrophic deformation due to expansion when water turns to ice. Antifreezes are chemical compounds added to water to reduce the freezing point of the mixture below the lowest temperature that the system is likely to encounter.

- Primary agent: Ethylene glycol
- Corrosion inhibitor: Organic acid (anti-corrosion to aluminum and steel)

2) Change Interval

- 5 years or 200,000 km

3) Boiling Point According to the Mixture Ratio

Contents of coolant	Boiling point at 0.75 bar	Remark
Water 100%	116℃	The coolant reservoir cap starts to operate from 1.2~1.6 bar (positive) and 0.07 bar (negative). The mixed coolant has enough temperature margin resulting in improved cooling performance.
50% + 50% (Water + Antifreeze)	124℃	

4) Oil Temperature Change According to the Coolant Temperature

The engine oil temperature goes up by 7˚C when the coolant temperature rises 10˚C.

5) Cautions when Mixing the Antifreeze

If the antifreeze volume in coolant is higher, up to 70%, the freezing point will be down. However, it is adverse to the engine performance. The optimum mixture ratio of coolant is 50%.

6) Freezing Point According to the Mixture Ratio

Antifreeze volume (%)	10	20	30	40	50	60	70	80	90	100
Freezing point (˚C)	-4	-9	-16	-25	-36	-51	-64	-54	-38	-27

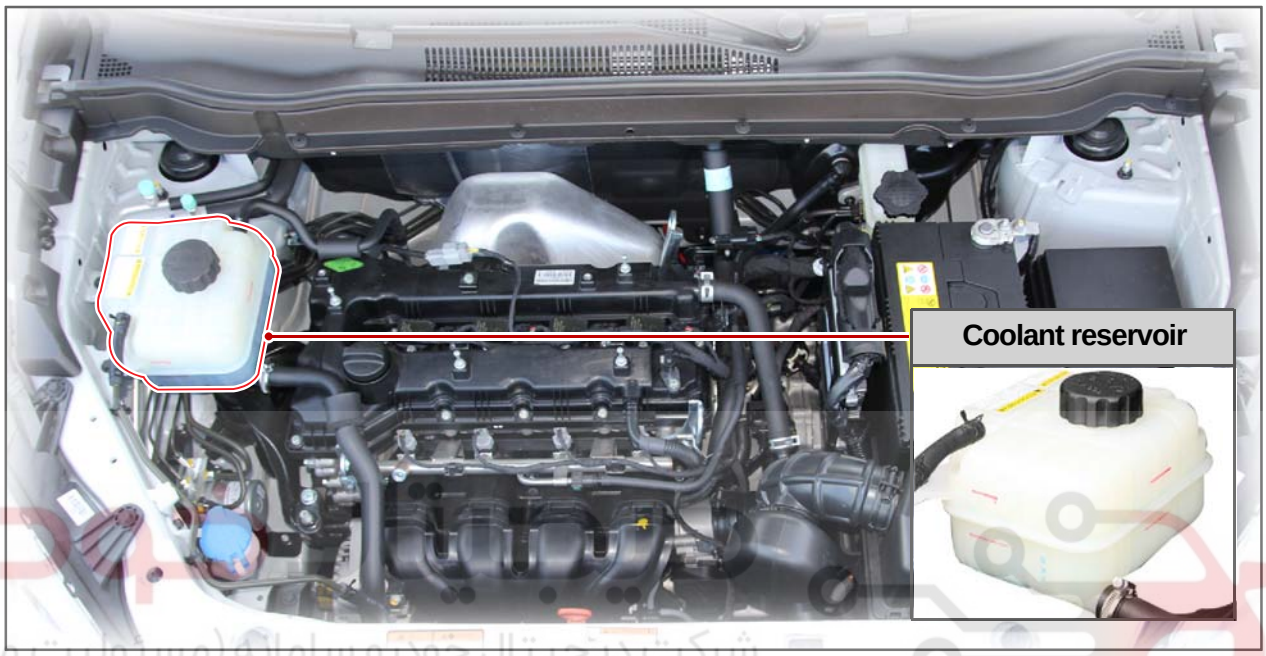
Modification basis	
Application basis	
Affected VIN	

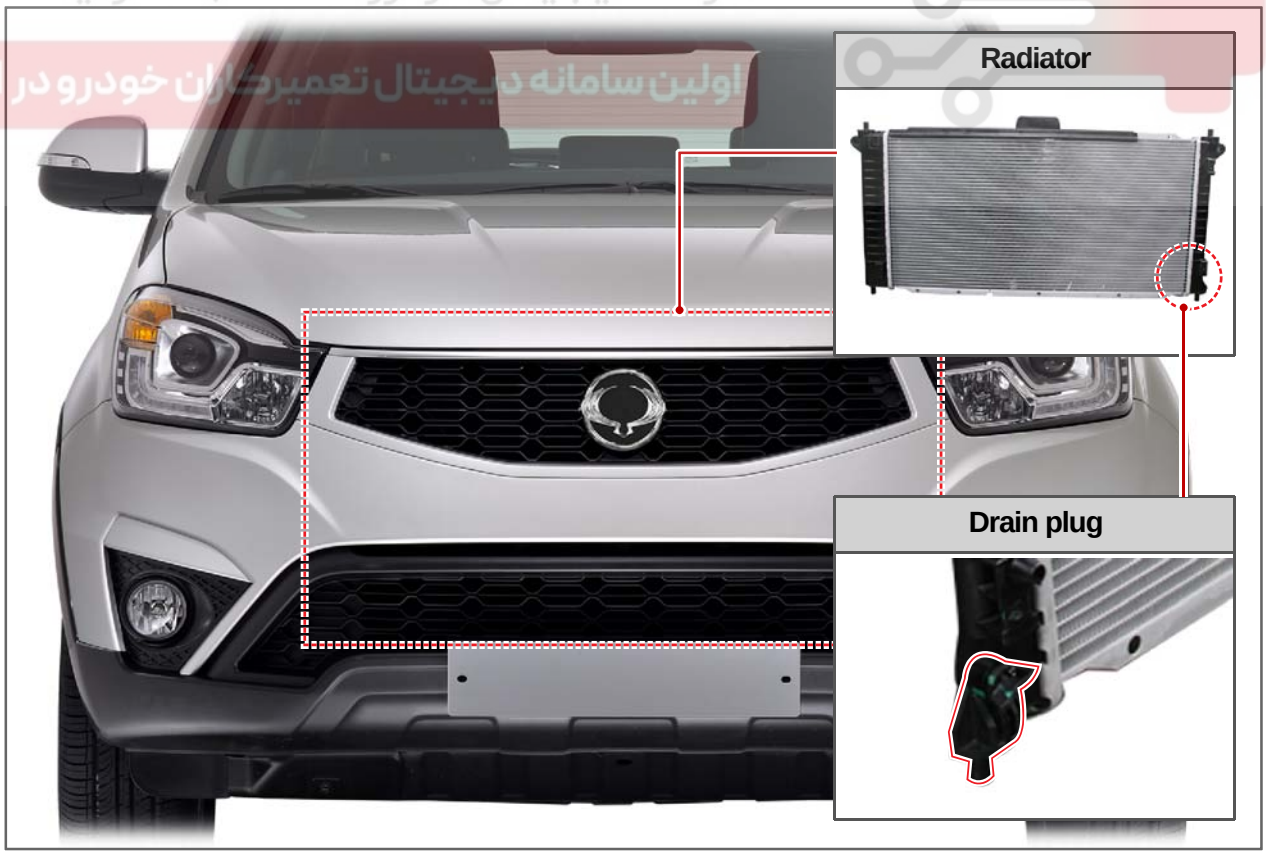
REMOVAL AND INSTALLATION

S.G.N. 9210-05

DRAINING AND ADDING THE COOLANT

Preceding work
- Remove the engine acoustic cover.
- Remove the undercover.





Modification basis	
Application basis	
Affected VIN	

▶ Drainign the coolant

1

1. Release the pressure in the system by loosening the pressure cap of the coolant reservoir slightly. Then, remove the pressure cap completely.

CAUTION

Scalding hot coolant and steam could be blown out under pressure, which could cause serious injury. Never remove the coolant reservoir cap when the engine and radiator are hot.

2

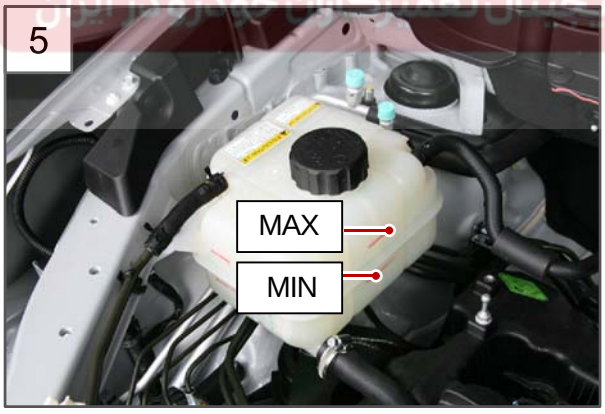
2. Remove the drain plug at the bottom of the radiator to drain the coolant.

CAUTION

- Collect the drained coolant into a suitable container.
- Avoid any direct contact of the coolant to the painted body of the vehicle.

3. Install the drain plug to the radiator.

5



4. Fill the coolant slowly into the reservoir.

NOTE

To release the air easily, press the hose.

CAUTION

- Use only the specified coolant.
- Use only the 50/50 mixture of soft water and antifreeze as specified.
- Freezing point of mixed coolant is −37˚C to −40˚C

5. Warm up the engine until the thermostat is open and check the coolant level on the coolant reservoir. Top up the coolant, if necessary.
(approx. 10 mm from MAX mark)

Modification basis	
Application basis	
Affected VIN	

S.G.N. 2112-01

RADIATOR ASSEMBLY

Preceding work

- Disconnect the negative cable from the battery.
- Remove the engine acoustic cover.
- Remove the undercover.
- Release the refrigerant from the air conditioner.

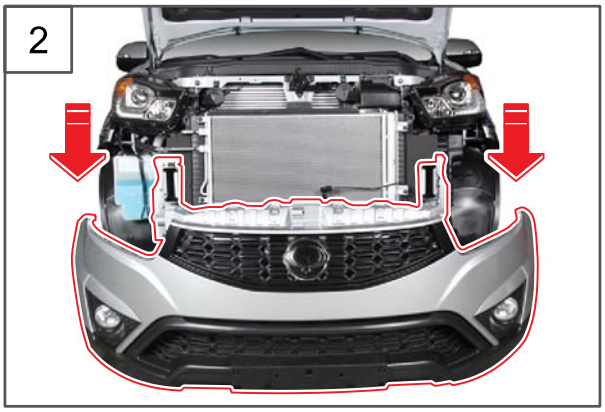
1

1. Remove the drain plug at the bottom of radiator and drain the coolant.

NOTE

Refer to chapter "Draining and adding coolant".

2



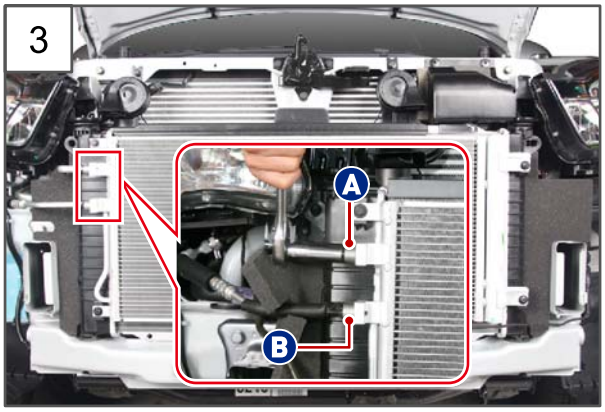
2. Remove the front bumper.

NOTE

Refer to Chapter "Body Exterior" in "CHASSIS".

Modification basis	
Application basis	
Affected VIN	

3



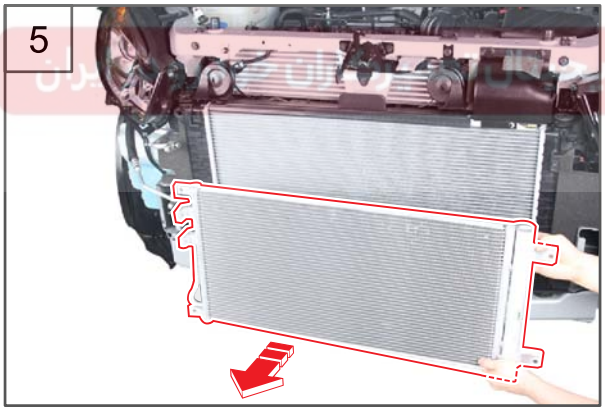
3. Unscrew the nut (A, 12 mm) and the nut (B, 10 mm) and separate the discharge & suction pipe and the liquid & suction pipe.

4

4. Unscrew four bolts (10 mm) from the condenser assembly.

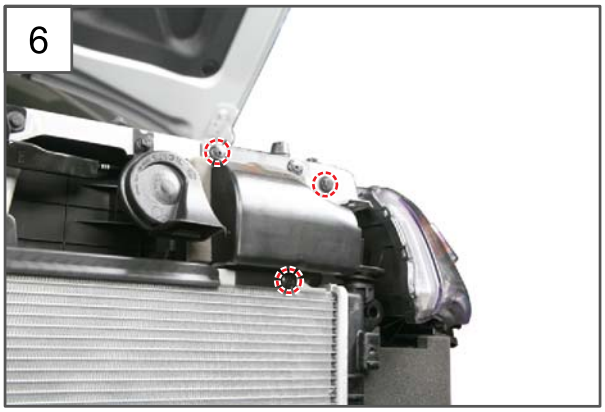
Tightening torque 10.0 ± 1.0Nm

5

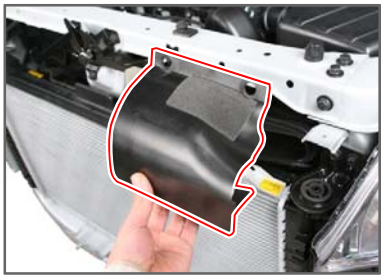


5. Remove the condenser assembly.

6



6. Unscrew three screw rivets and remove the water protector.



Modification basis	
Application basis	
Affected VIN	

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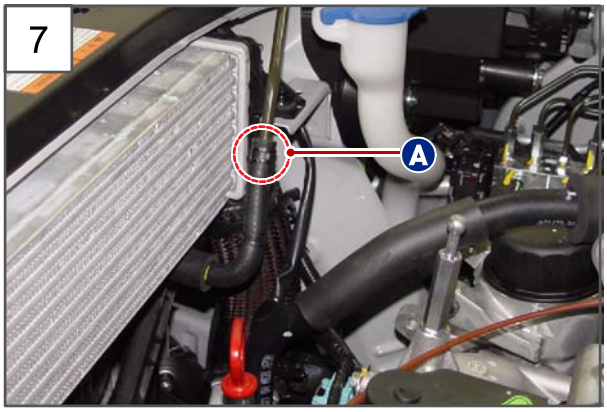
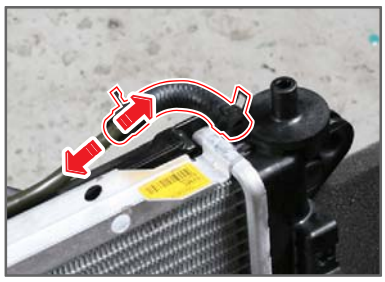


7. Release the clamp (A) on the radiator and separate the deaeration hose.



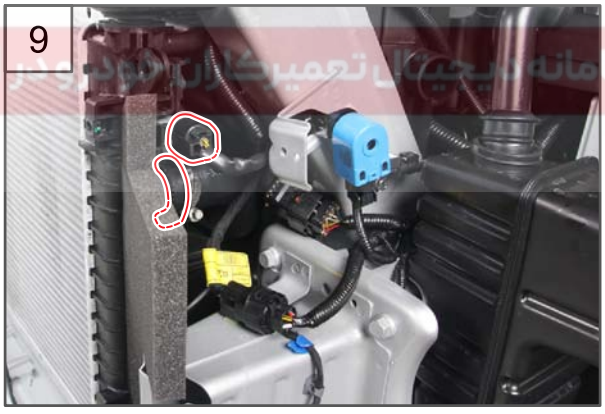
8

8. Remove the headlamp assemblies.

NOTE

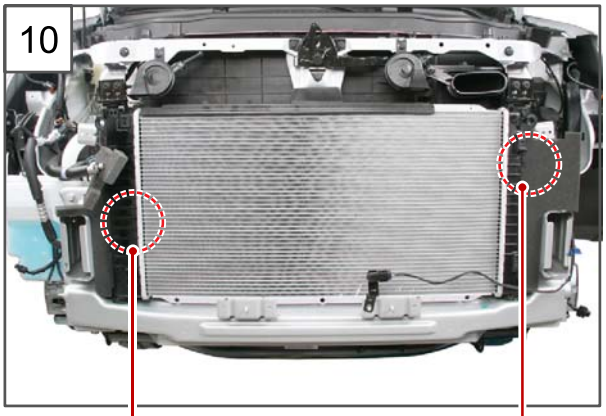
Refer to Chapter "Body Exterior" in "CHASSIS".

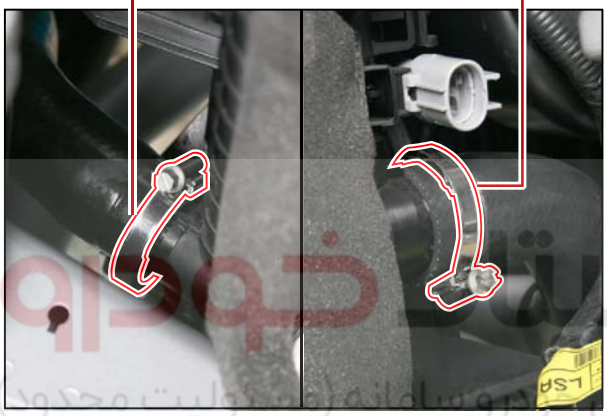
9



9. Disconnect the cooling fan motor connectors.

10

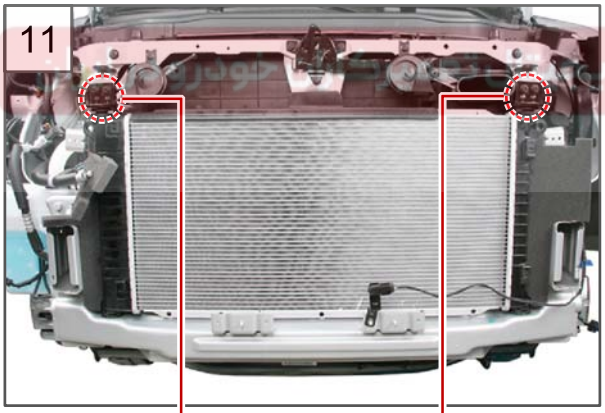


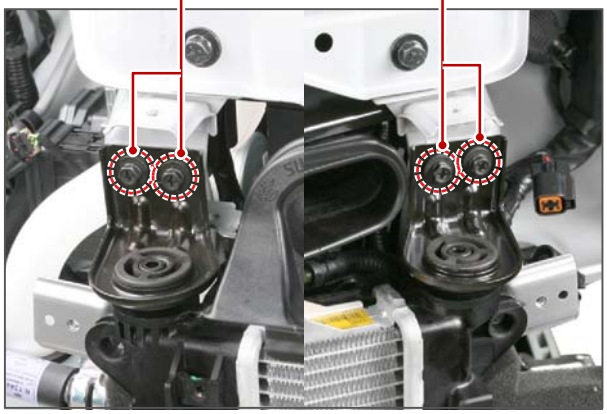


10.Release the clamps and separate the radiator inlet and outlet hoses.

Tightening torque 6.0 ~ 7.0Nm

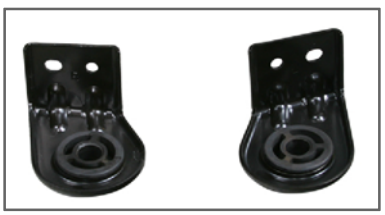
11





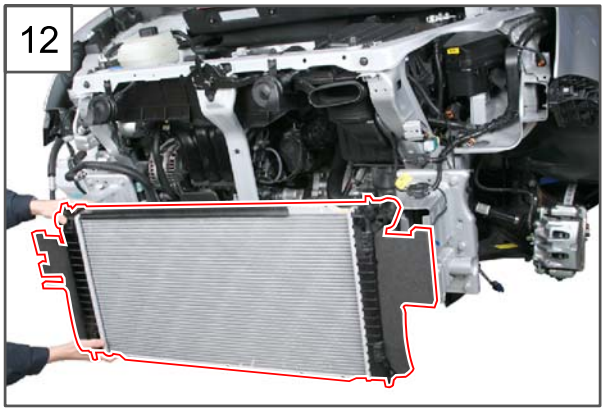
11.Unscrew four bolts (10 mm) and remove the radiator upper module bracket.

Tightening torque 10.0 ± 1.0Nm



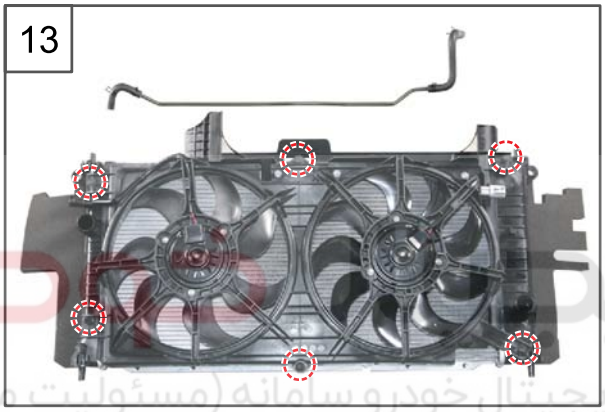
Modification basis	
Application basis	
Affected VIN	

12



12.Remove the radiator assembly from the vehicle.

13



13.Unscrew six bolts (10 mm) and remove the fan and shroud assembly from the radiator.

Tightening torque 10.0 ± 1.0Nm

14

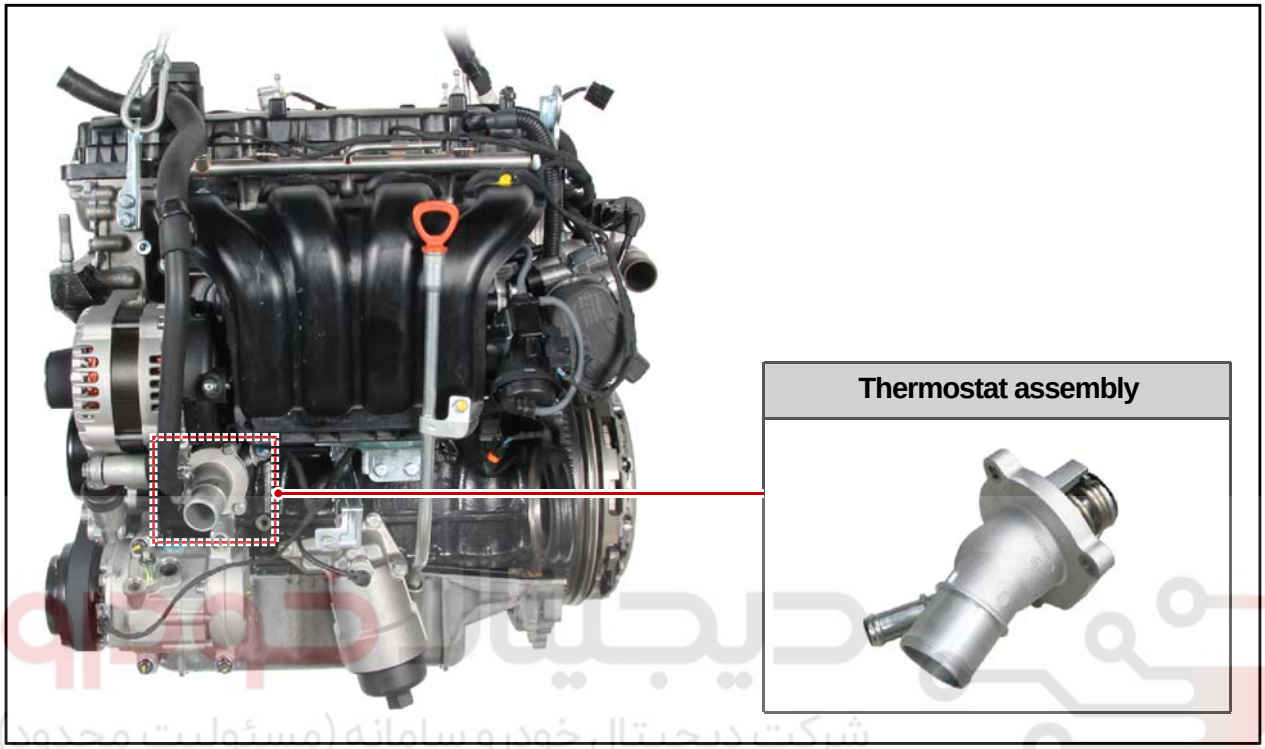
14.Install the radiator assembly in the reverse order of removal.

Modification basis	
Application basis	
Affected VIN	

S.G.N. 1524-07

THERMOSTAT ASSEMBLY

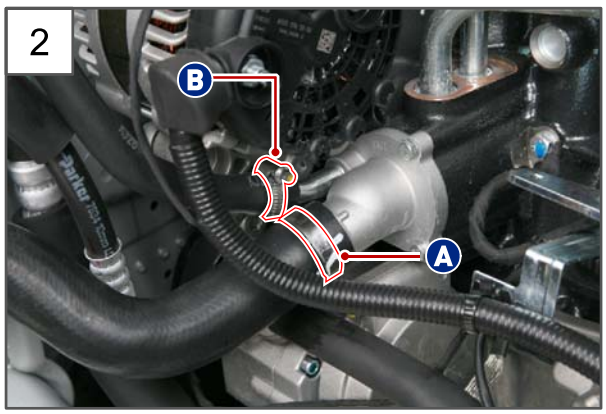
Preceding work
- Disconnect the negative cable from the battery.
- Remove the engine acoustic cover.



1. Remove the drain plug at the bottom of radiator and drain the coolant.

NOTE

Refer to chapter "Draining and adding coolant".

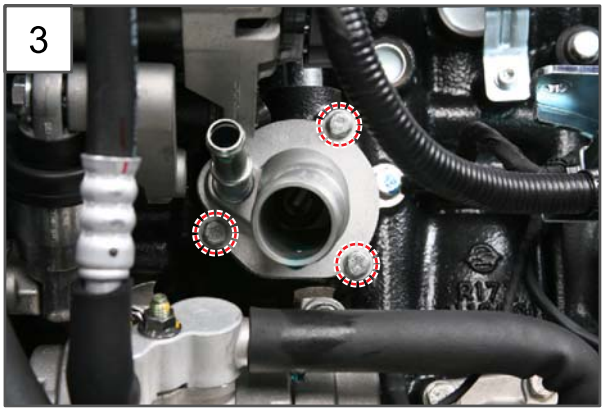


2. Release the clamp (A) on radiator inlet hose and the clamp (B) on coolant reservoir.

Tightening torque 6.0 ~ 7.0Nm

Modification basis	
Application basis	
Affected VIN	

3



3. Unscrew three bolts (10 mm) from the thermostat.

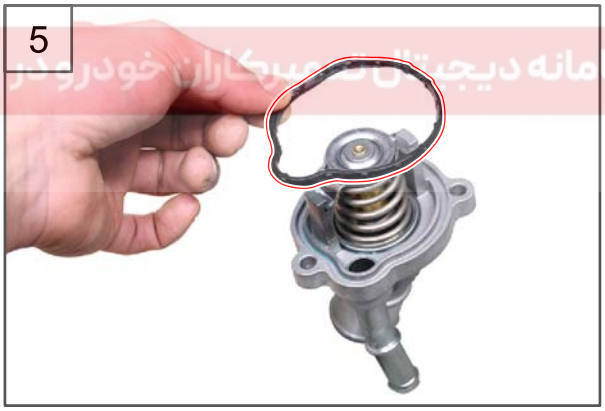
Tightening torque 10.0 ± 1.0Nm

4

4. Remove the thermostat assembly from the cylinder block.

CAUTION
Make sure not to spill out the coolant from the cooling lines.

5



5. Remove the O-ring from the thermostat.

CAUTION
Replace the O-ring with new one.

6

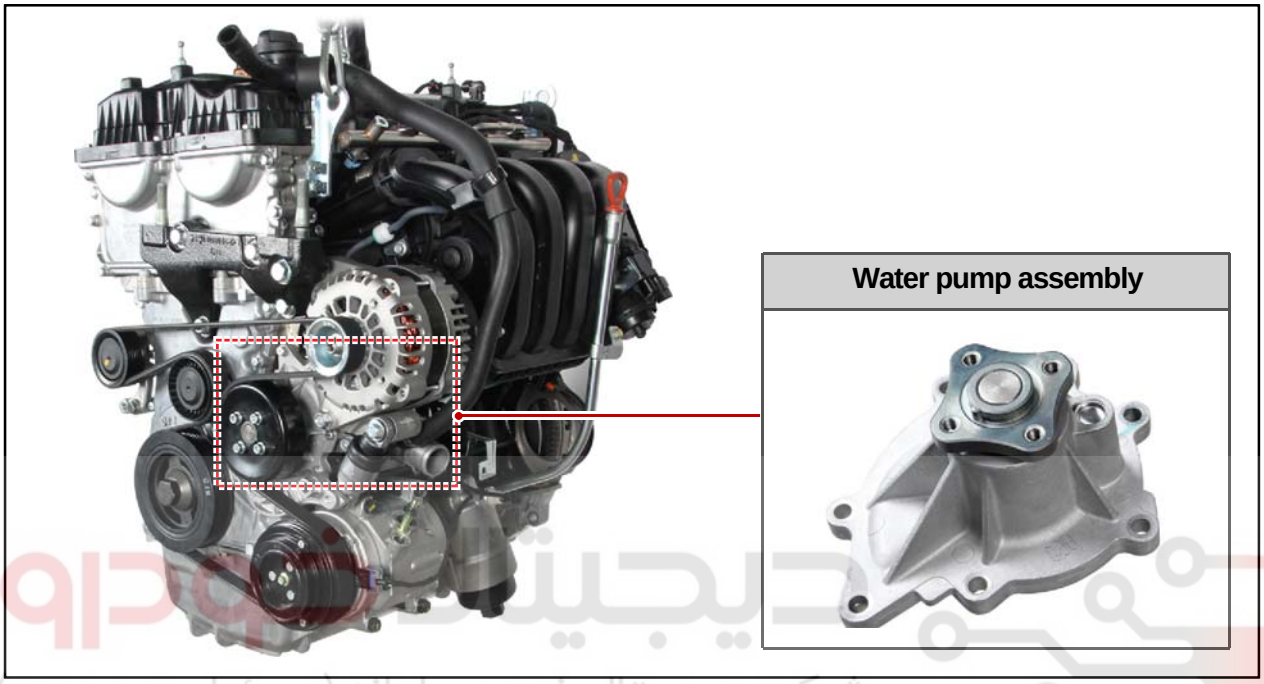
6. Install the thermostat assembly in the reverse order of removal.

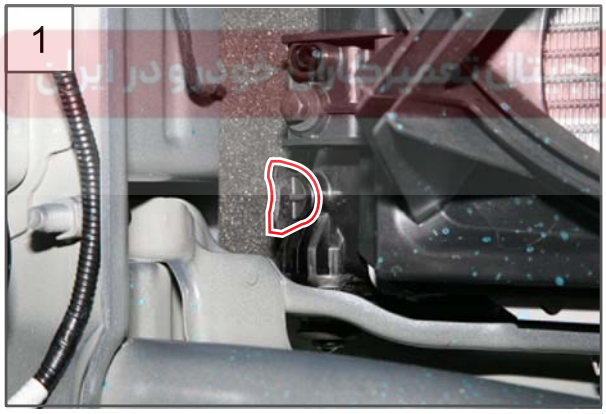
S.G.N. 1524-01

WATER PUMP ASSEMBLY

Preceding work

- Disconnect the negative cable from the battery.
- Remove the engine acoustic cover.
- Remove the undercover.

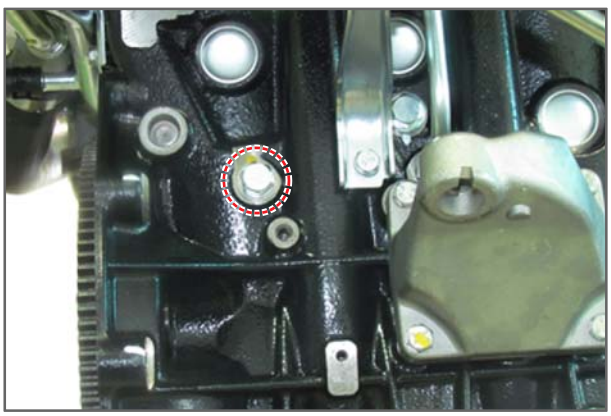




1. Remove the drain plug at the bottom of radiator and drain the coolant.

NOTE

Refer to chapter “Draining and adding coolant”.



- Unscrew the drain bolt (A) and drain the coolant from the cylinder block.

NOTE

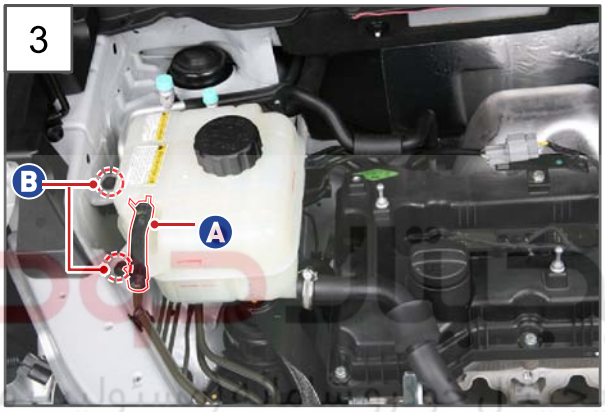
To release the air easily, press the hose.

Modification basis	
Application basis	
Affected VIN	

2

2. Support the bottom of oil pan with a safety jack.

3



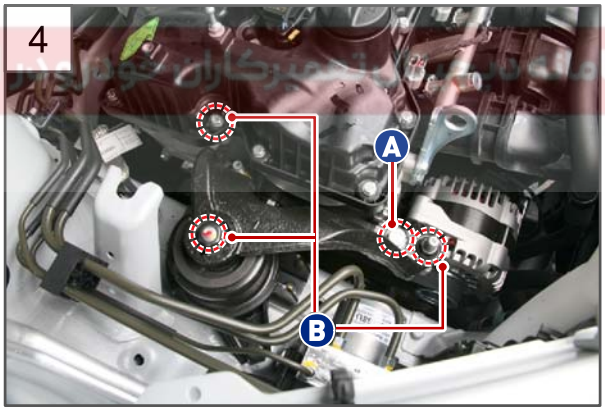
3. Separate the deaeration hose (A) and unscrew two bolts (B, 10 mm).

Tightening torque (B) 10.0 ± 1.0Nm

CAUTION

Do not the coolant to make contact with the body paintwork and engine.

4

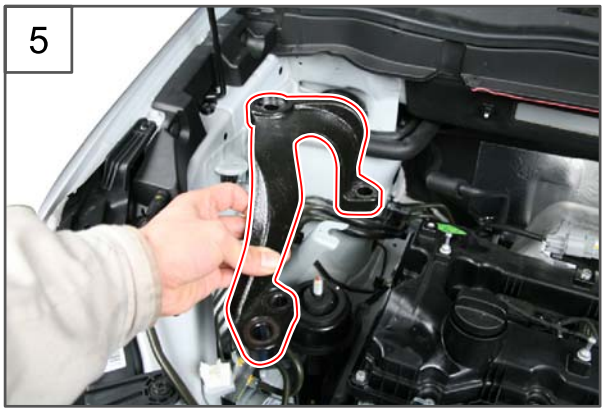


4. Unscrew the bolt (A, 17 mm) and the nut (B, 17 mm) from the left bracket.

Tightening torque (A) 55.0 ± 5.0Nm

Tightening torque (B) 55.0 ± 5.0Nm

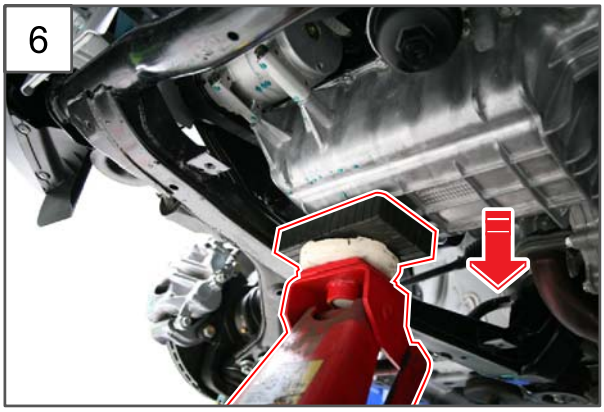
5

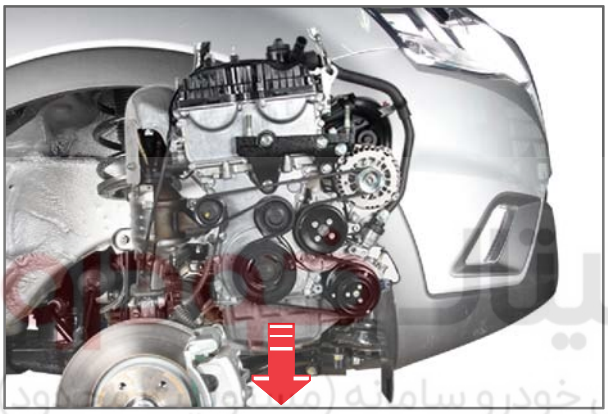


5. Remove the left bracket.

Modification basis	
Application basis	
Affected VIN	

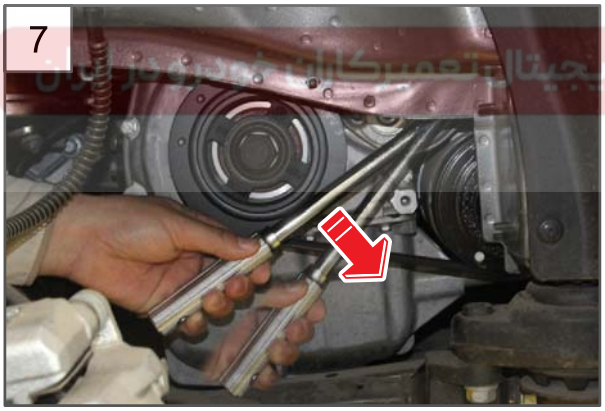
6





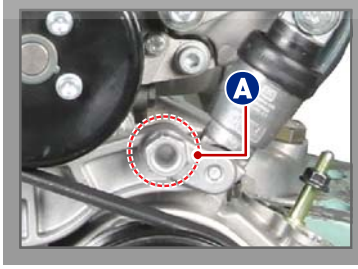
6. Slowly lower the floor jack as it goes without any overload to emgine mountings.

7



7. Release the tension by turning the hydraulic tensioner adjust bolt (A) counterclockwise.

NOTE



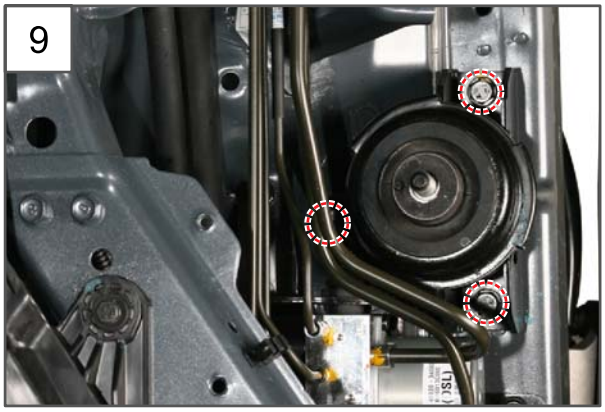
Carry out the work using a hinge handle connecting rod, if necessary.

8

8. Remove the fan belt.

Modification basis	
Application basis	
Affected VIN	

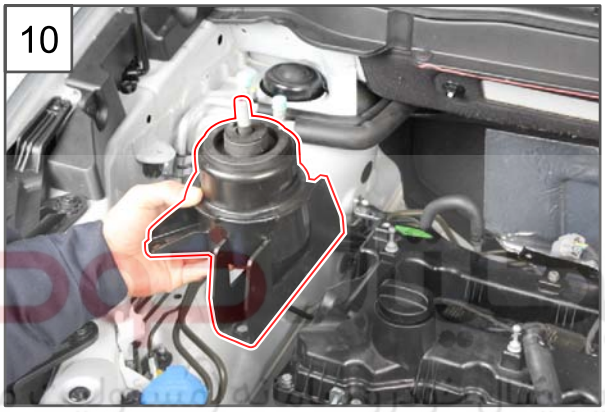
9



9. Unscrew three bolts (14 mm) from the right mount.

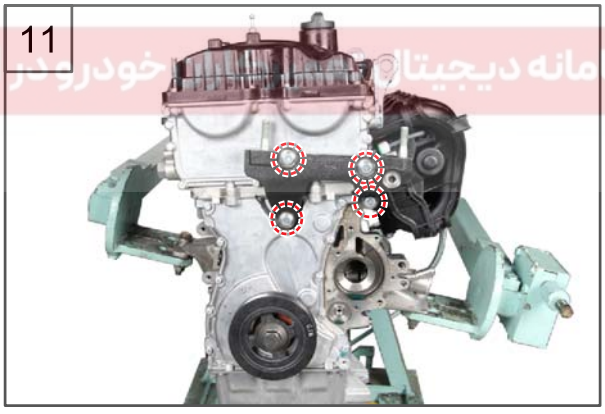
Tightening torque 29.4 ~ 49Nm

10



10. Remove the right mount.

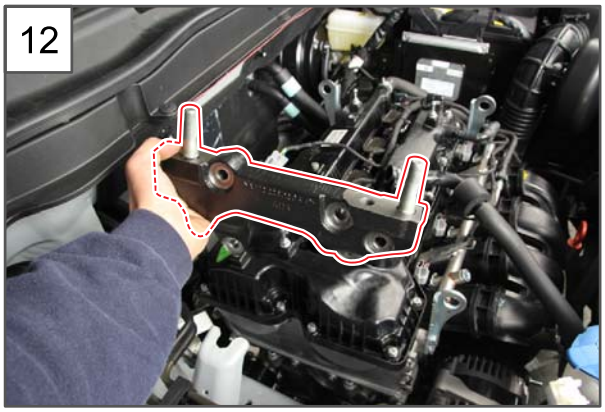
11



11. Unscrew four bolts (15 mm) from the engine lower mount.

Tightening torque (B) 60.0 ± 6.0Nm

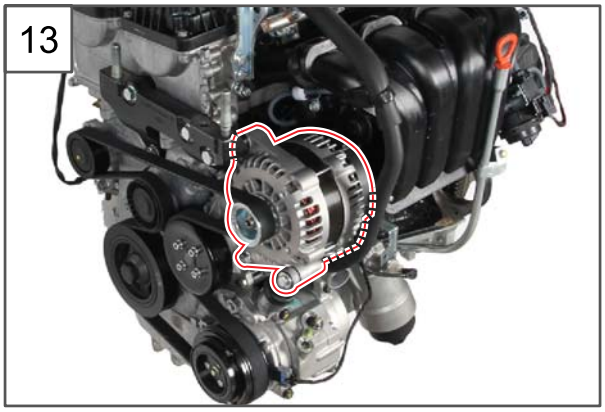
12



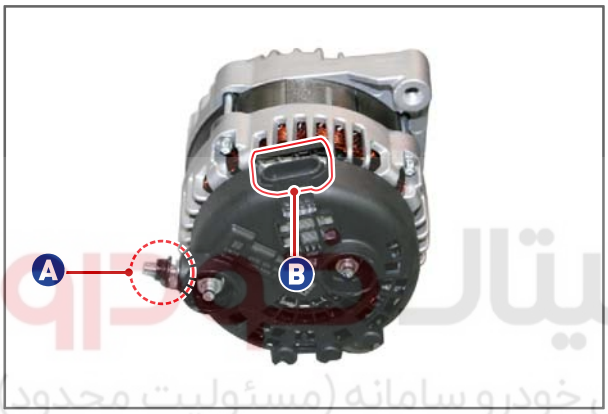
12. Remove the engine lower mount.

Modification basis	
Application basis	
Affected VIN	

13



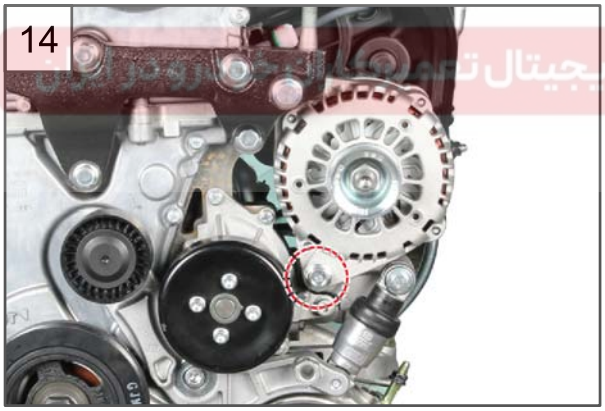
13.Disconnect the alternator connector (A) and the battery plug connection (B).



CAUTION

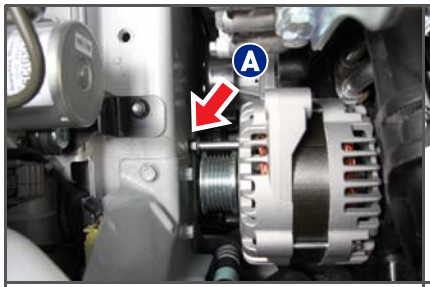
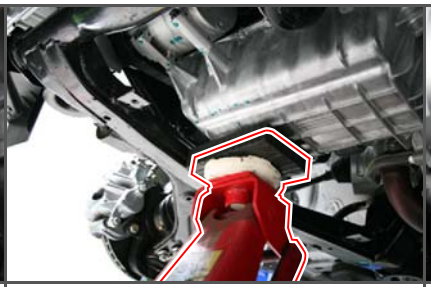
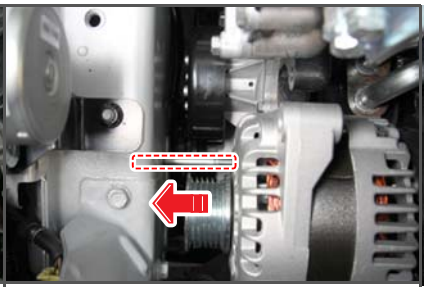
Poor contact of alternator ground can make the voltage between B+ terminal and ground.

14



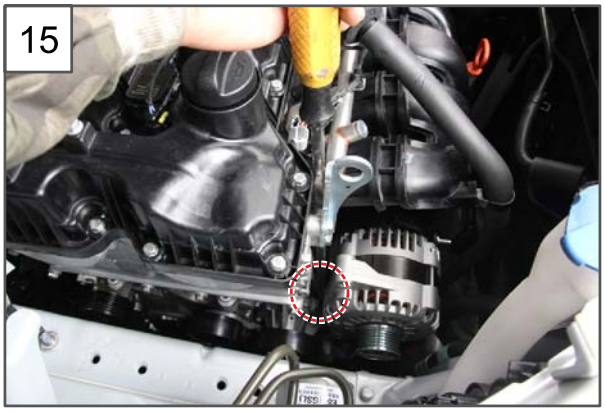
14.Unscrew the bolt (15 mm) from the alternator.

Tightening torque 45.0 ± 4.5Nm

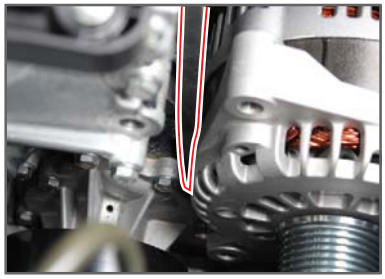
		
Pull out the bolt near the hole in frame.	Move up or down the engine with the floor jack to align the hole in frame with the bolt.	Remove the bolt through the hole.

Modification basis	
Application basis	
Affected VIN	

15



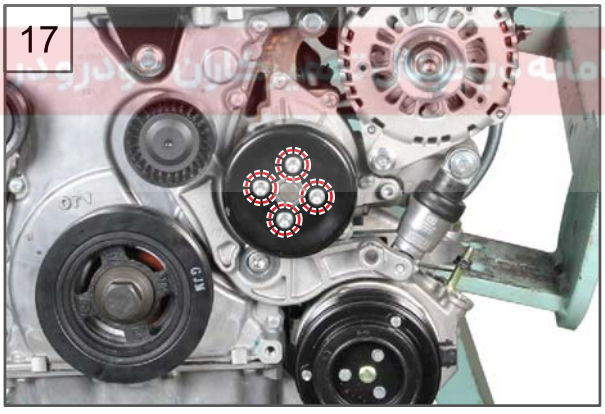
15.Separate the alternator.



16

16.Remove the alternator from engine compartment.

17



17.Unscrew four bolts (5 mm) from the water pump pulley.

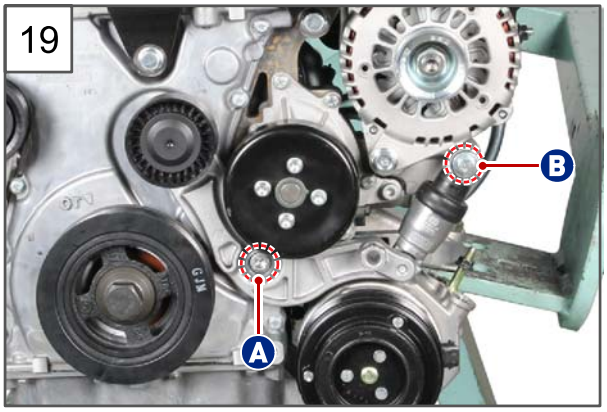
Tightening torque 10.0 ± 1.0Nm

18

18.Remove the water pump pulley.

Modification basis	
Application basis	
Affected VIN	

19



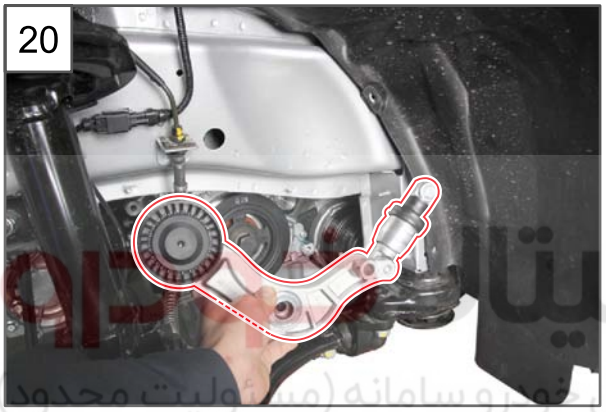
19.Unscrew the bolt (A, 8 mm) on hydraulic tensioner pivot and the upper bolt (B, 13 mm) on hydraulic tensioner.

Tightening torque (A) 82.0 ± 5.0Nm

Tightening torque (B) 32.0 ± 3.2Nm

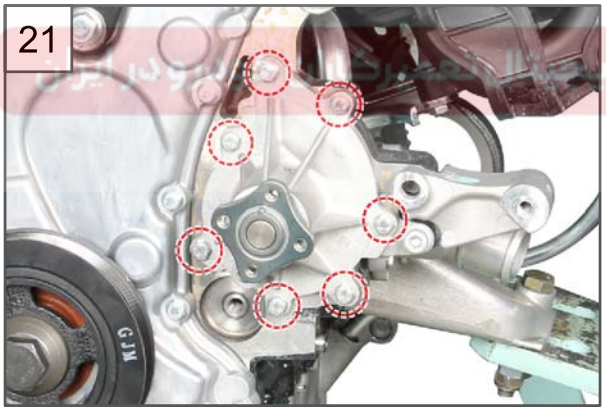
CAUTION
Keep the hydraulic tensioner with 45° or higher angle.

20



20.Remove the hydraulic tensioner assembly.

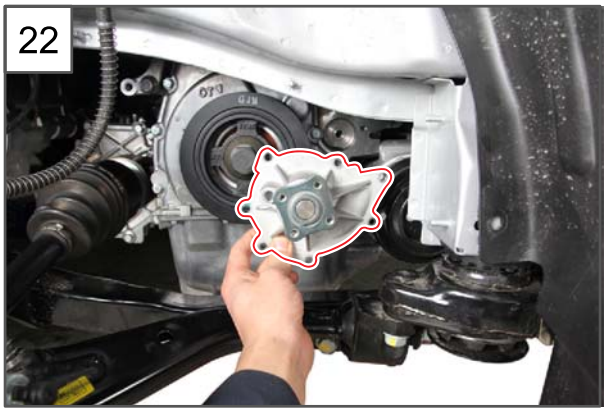
21



21.Unscrew 7 bolts (10 mm) on the water pump assembly.

Tightening torque 10.0 ± 1.0Nm

22



22.Remove the water pump assembly.

CAUTION
Make sure not to spill out the coolant through the coolant lines.

Modification basis	
Application basis	
Affected VIN	

23

23.Remove the sealing from the water pump.

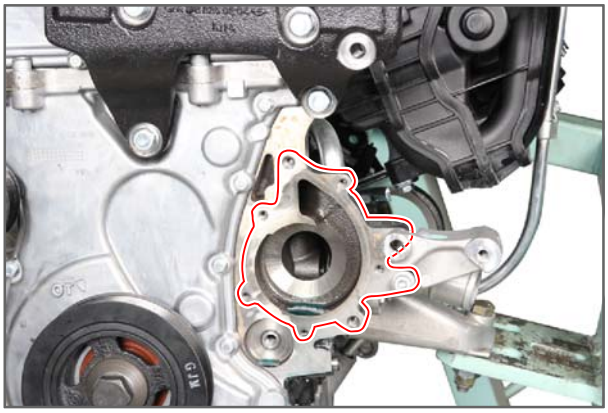
CAUTION
Remove the sealing with new one.

24

24.Install the water pump assembly in the reverse order of removal.

Modification basis	
Application basis	
Affected VIN	

Cautions when installing



Remove the foreign materials from the cylinder block.

Replace the sealing on water pump with new one.

Do not disassemble the water pump assembly.

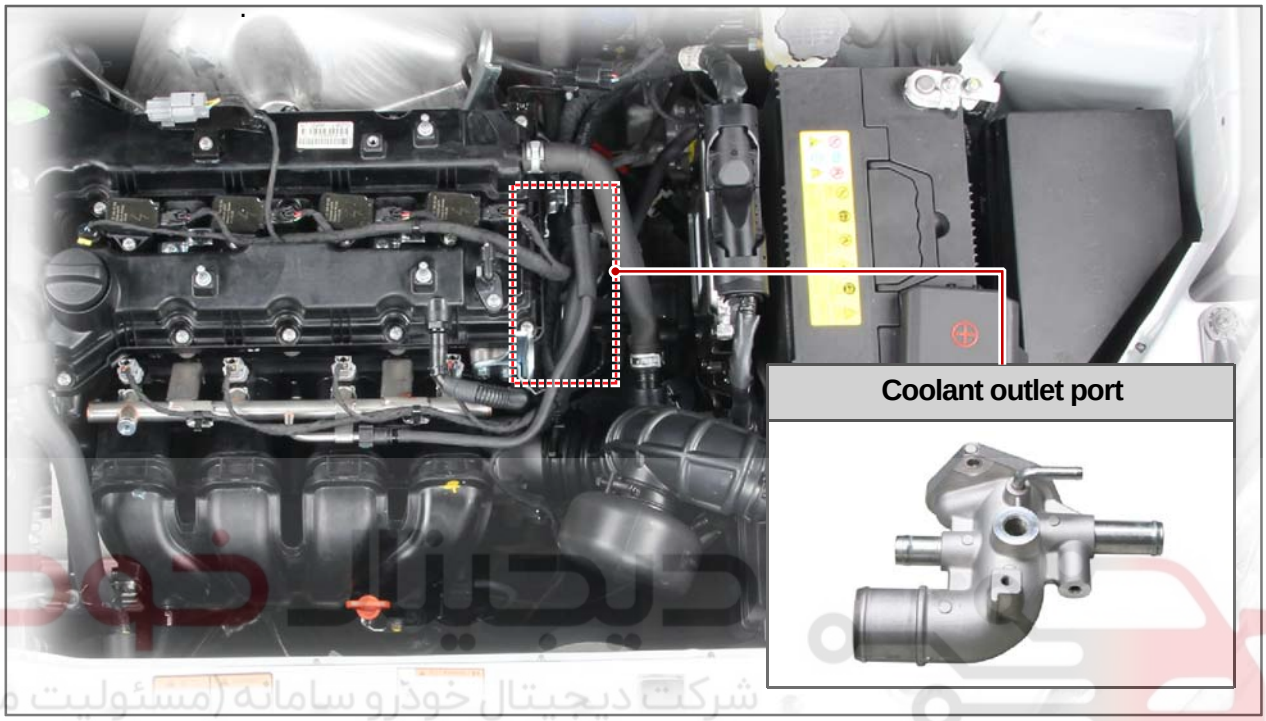
Modification basis	
Application basis	
Affected VIN	

S.G.N. 1524-09

COOLANT OUTLET PORT

Preceding work

- Disconnect the negative cable from the battery.
- Remove the engine acoustic cover.
- Remove the undercover.



1. Remove the drain plug at the bottom of radiator and drain the coolant.

NOTE

Refer to chapter "Draining and adding coolant".

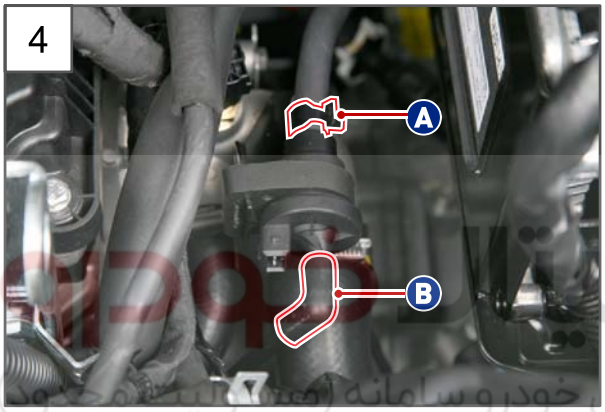
2. Release the clamps and remove the blow-by hose.

Modification basis	
Application basis	
Affected VIN	

3

3. Disconnect the purge control solenoid valve connector.

4

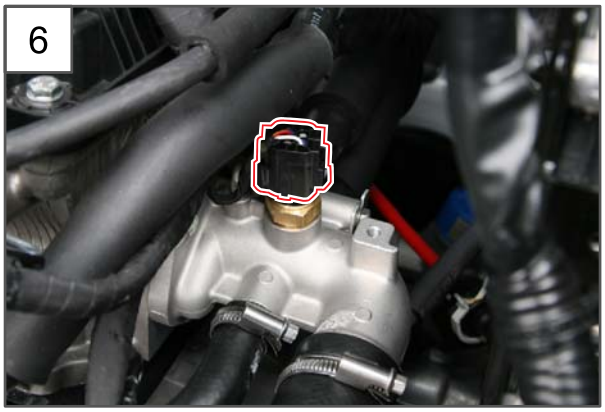


4. Separate the hose (A) to canister and the hose (B) to intake manifold.

5

5. Unscrew the bolt (10 mm) and remove the purge control solenoid valve.

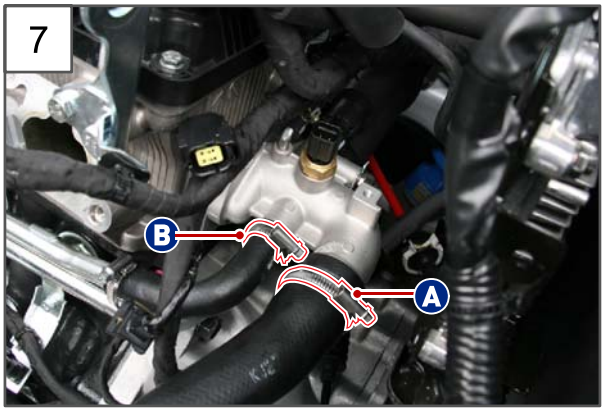
6



6. Disconnect the coolant temperature sensor connector.

Modification basis	
Application basis	
Affected VIN	

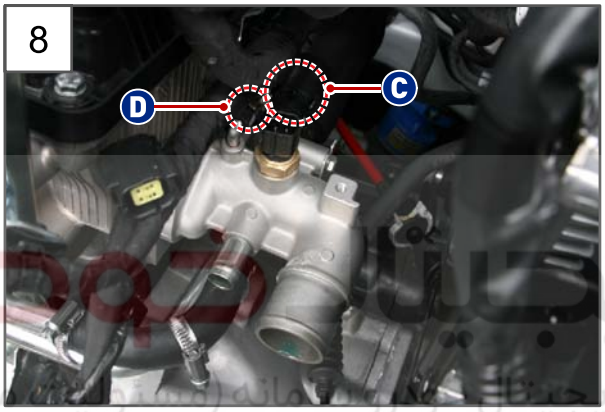
7



7. Release the clamp (A) on coolant outlet hose and the clamp (B) on bypass hose.

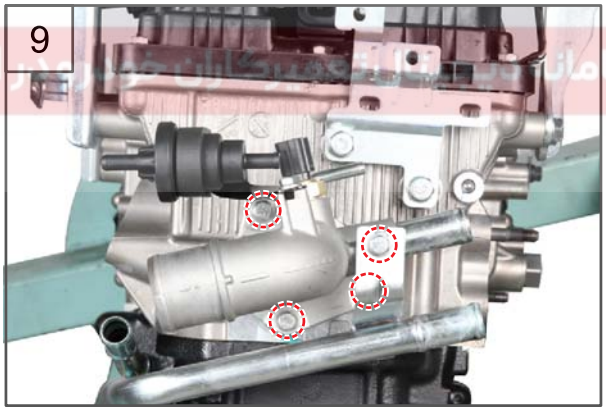
Tightening torque 3.0 ± 0.5Nm

8



8. Release the clamp (C) on heater cabin outlet hose and the clamp (D) on coolant reservoir hose.

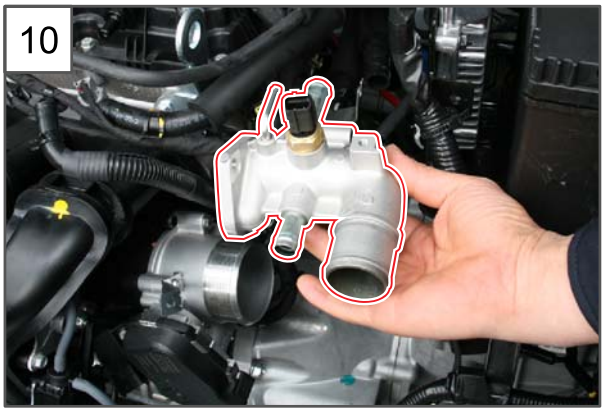
9



9. Unscrew four bolts (10 mm) from the coolant outlet port.

Tightening torque 10.0 ± 1.0Nm

10



10. Remove the coolant outlet port.

11

11.Remove the sealing from the coolant outlet port.

CAUTION

Replace the sealing with new one.

12

12.Install the coolant outlet port in the reverse order of removal.

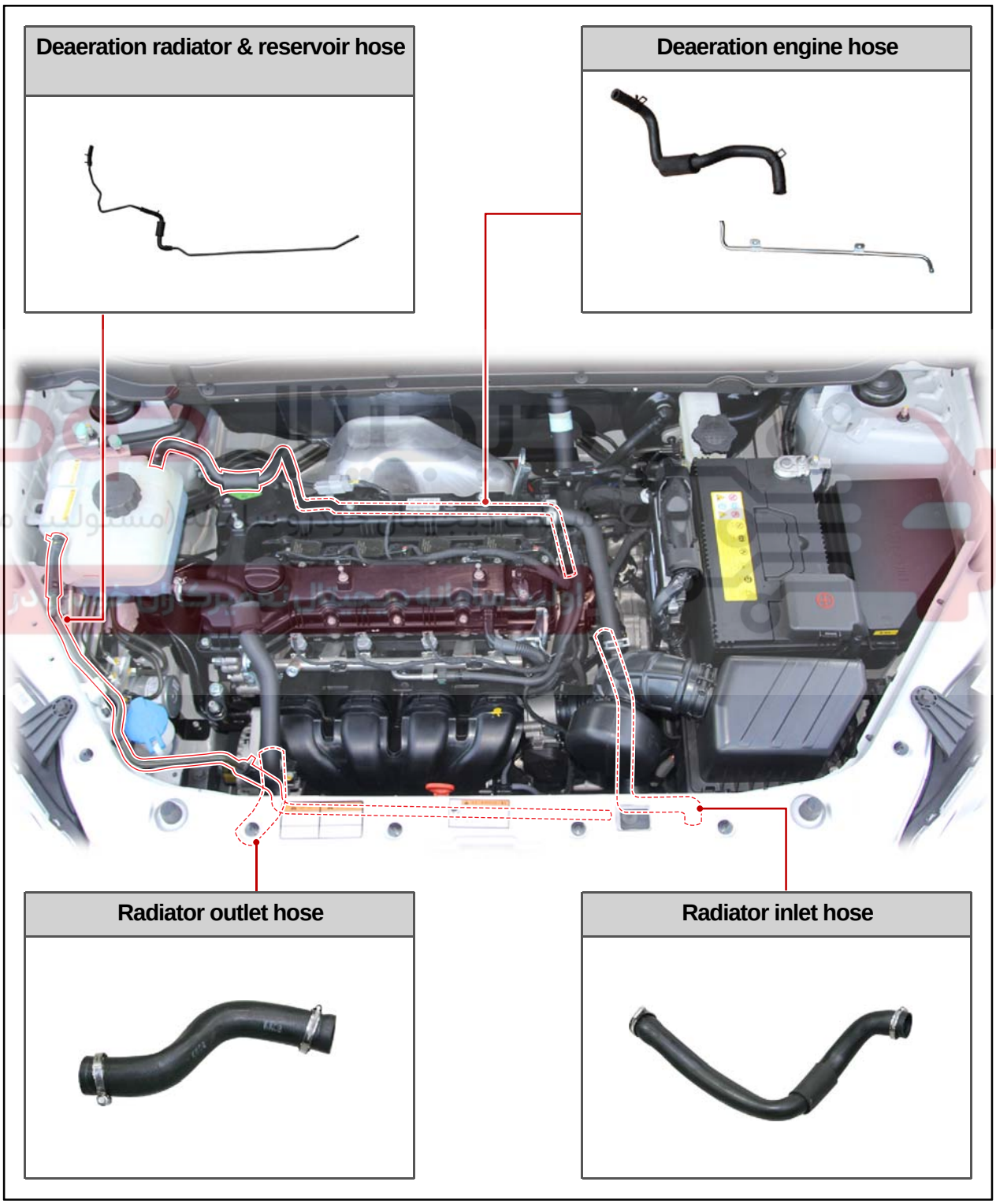
Modification basis	
Application basis	
Affected VIN	

S.G.N. 2130-01

HOSE ASSEMBLY

Preceding work

- Disconnect the negative cable from the battery.
- Remove the engine acoustic cover.
- Remove the undercover.
- Drain the coolant.



Modification basis	
Application basis	
Affected VIN	

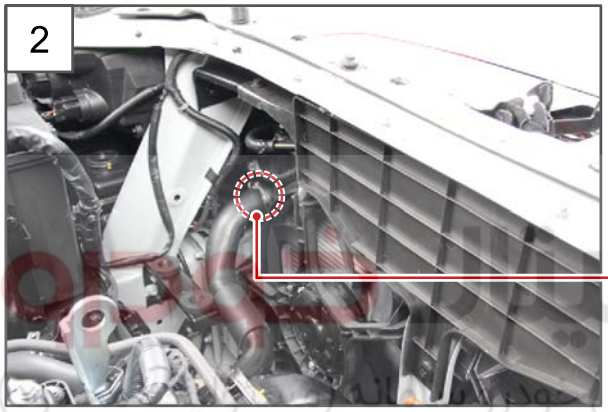
▶ Radiator upper hose

1

1. Remove the air cleaner assembly.

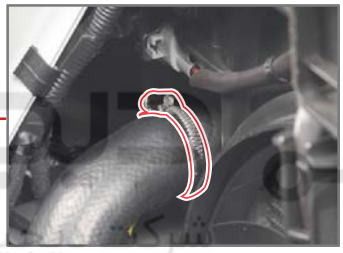
NOTE
Refer to Chapter "Intake System".

2

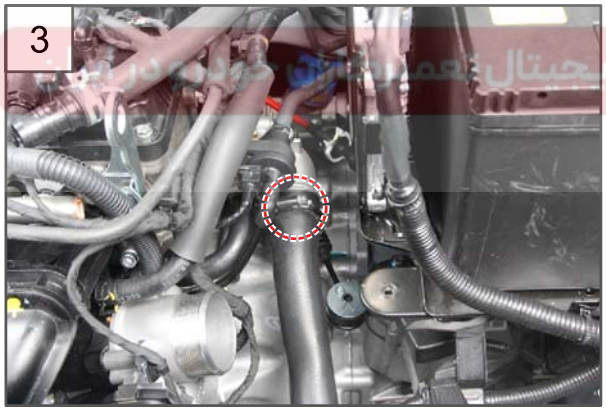


2. Release the clamp and remove the radiator inlet hose.

Tightening torque 6.0 ~ 7.0Nm



3



3. Release the clamp on the coolant outlet port and remove the hose.

Tightening torque 6.0 ~ 7.0Nm

4

4. Remove the radiator inlet hose.

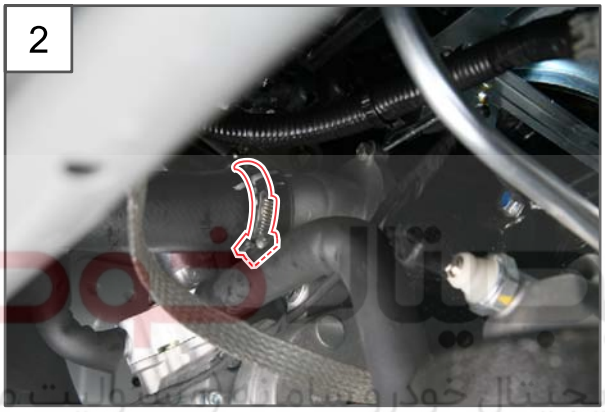
5. Install the radiator upper hose in the reverse order of removal.

Modification basis	
Application basis	
Affected VIN	

▶ Radiator outlet hose

1. Release the clamp and remove the hose.

Tightening torque 6.0 ~ 7.0Nm



2. Release the clamp on thermostat and remove the hose.

Tightening torque 6.0 ~ 7.0Nm

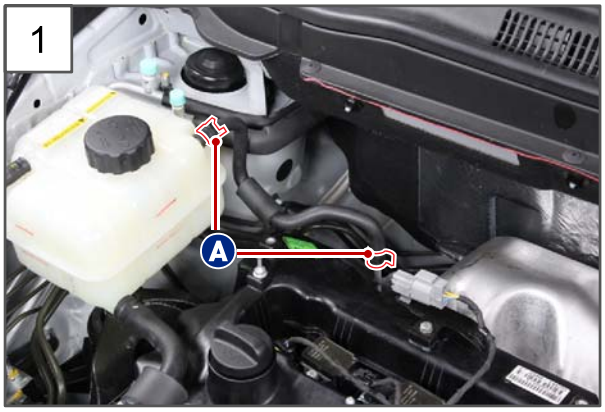
3. Remove the radiator outlet hose.

4. Install the radiator outlet hose in the reverse order of removal.

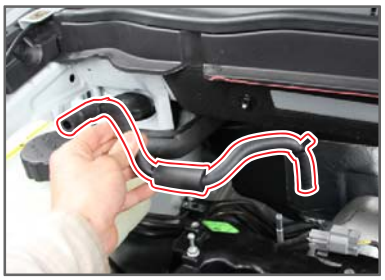
Modification basis	
Application basis	
Affected VIN	

▶ Deaeration reservoir hose

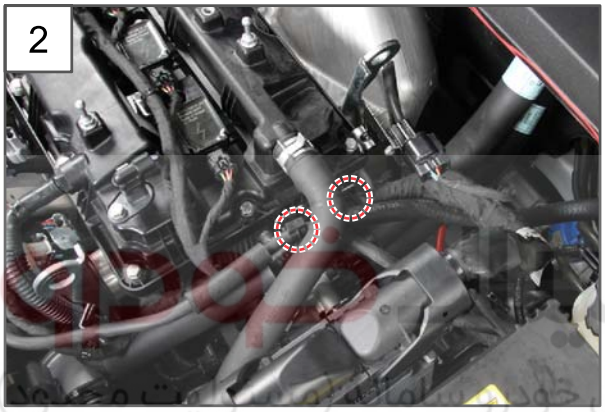
1



1. Release the clamp (A) and separate the deaeration engine hose to coolant reservoir.

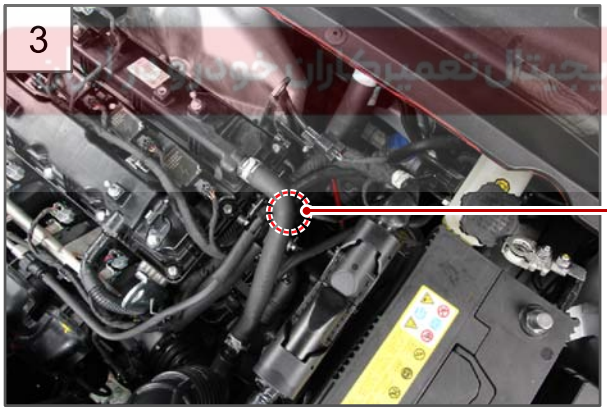


2



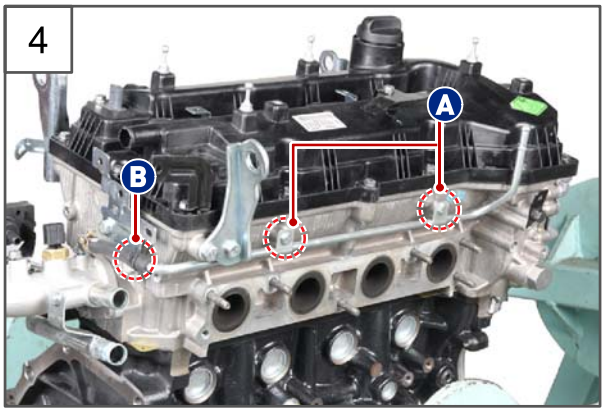
2. Release the clamp on the engine ECU wiring harness.

3



3. Release the clamp and remove the hose to coolant outlet port.

4

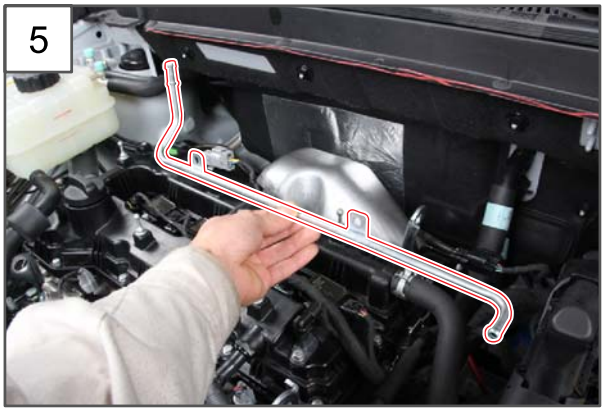


4. Unscrew two bolts (A, 10 mm) and the clamp (B) on the deaeration engine hose.

Tightening torque 10.0 ± 1.0Nm

Modification basis	
Application basis	
Affected VIN	

5



5. Remove the deaeration reservoir hose assembly.

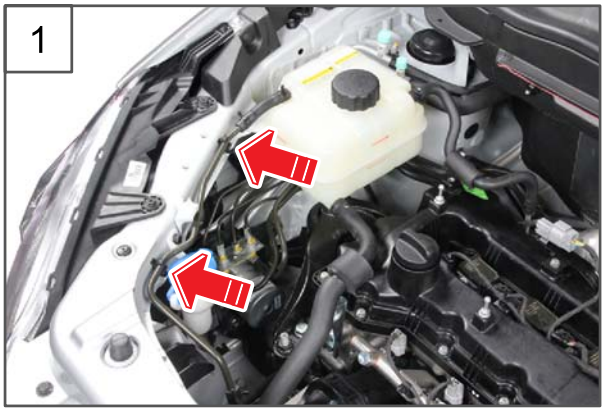
6

6. Install the deaeration reservoir hose assembly in the reverse order of removal.

Modification basis	
Application basis	
Affected VIN	

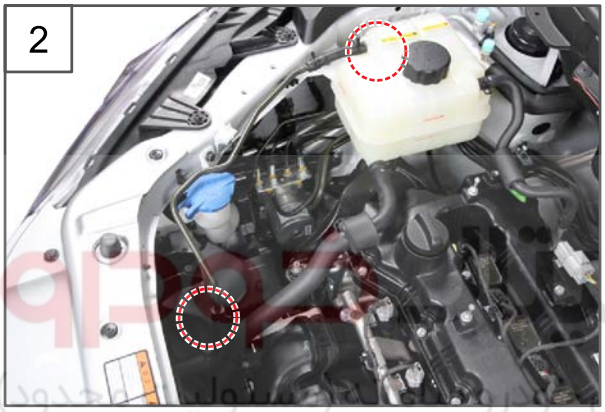
▶ Deaeration radiator hose

1



1. Release two clamps on deaeration radiator hose assembly.

2

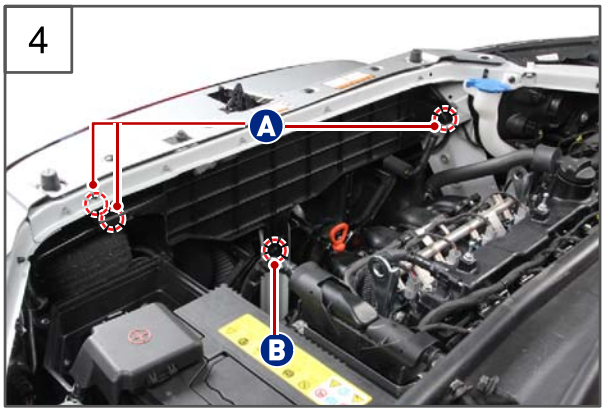


2. Release the deaeration hose clamps.

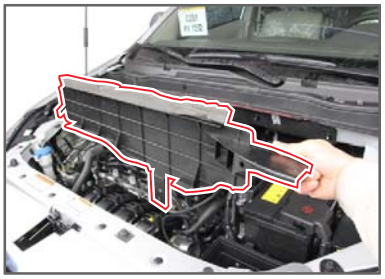
3

3. Remove the deaeration reservoir hose.

4

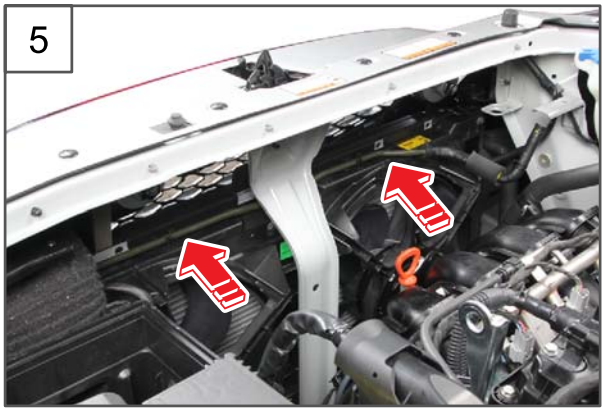


4. Unscrew three bolts (A, 10 mm) and the fastener (B) and remove the Protector-Eroom Hot Air.



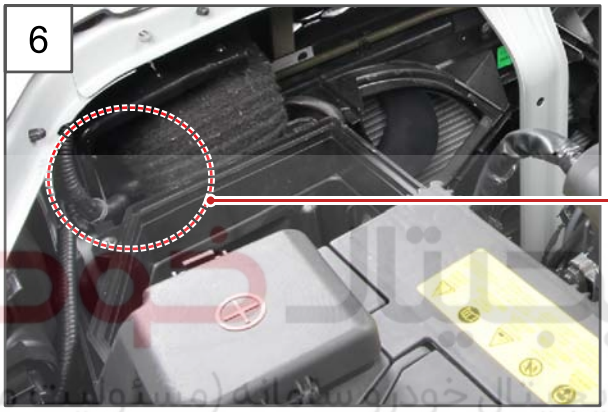
Modification basis	
Application basis	
Affected VIN	

5

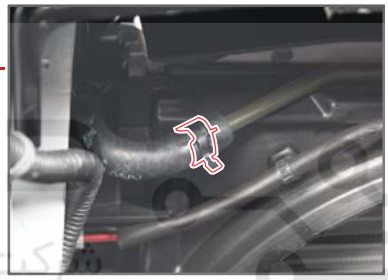


5. Release two upper clamps on radiator.

6



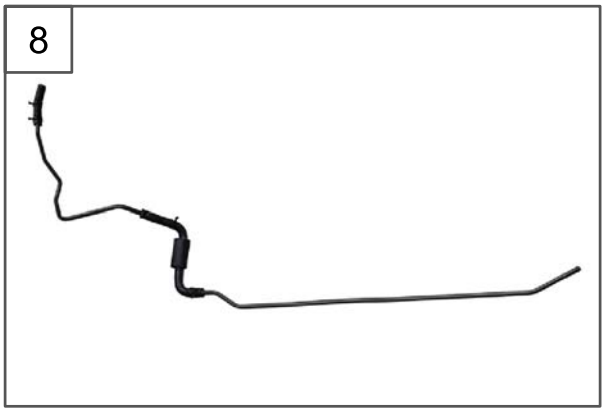
6. Release the clamp and remove the deaeration radiator hose.



7

7. Remove the deaeration radiator lower hose assembly.

8



8. Install the deaeration radiator hose in the reverse order of removal.

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Modification basis	
Application basis	
Affected VIN	

Memo