

COOLING SYSTEM

1528-01

GENERAL INFORMATION

1. SPECIFICATIONS

Category			Specifications	Remarks
Cooler	Type		Forced circulation / water-cooled	-
Radiator	Coolant flow type		Cross flow	
	Core size (mm)		A/T: 480W*460H*16T M/T: 480W*460H*11T	
Electric fan	Type		Electric	
	Capacity	A/T	200 W	
		M/T	150 W	
	Control type		Resistor type (low/high)	
Coolant reservoir tank	Capacity		1.6 L	
	Cap type / pressure		Screw type / 1.4bar	
Thermostat	Type		Wax pellet type	
	Opening temperature		90 ± 2°C	
	Fully open temperature		100°C	
Coolant	Anti-freeze		SYC1025 (LCC)	
	Mixing ratio (water:antifreeze)		50:50	
	Coolant capacity		Approx. 6.5 L	

Modification basis	
Application basis	
Affected VIN	

2. PRECAUTIONS

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 form scales in the cooling system because of chemical reaction. This restricts the flow in the cooling system and causes overheating and seizure of the engine.
- Hot coolant or steam can spray out with great force when the coolant reservoir tank cap is opened while the engine is running or hot, causing serious burns.
- To open the coolant reservoir cap, wrap the cap with a wet towel or thick cloth after the engine has been cooled down sufficiently.
- If cold water is added while the engine is overheated, the engine or radiator can be deformed.
- Anti-freeze can damage the painted surface. Avoid contact with the painted surface.
- Anti-freeze and water should be mixed in proper mixture ratio. Never add only water when the coolant runs low.
- If the anti-freeze concentration is too low, there is a danger of freeze-up. If the anti-freeze concentration is too high, it will reduce the cooling capacity of the system, resulting in overheating of the engine.

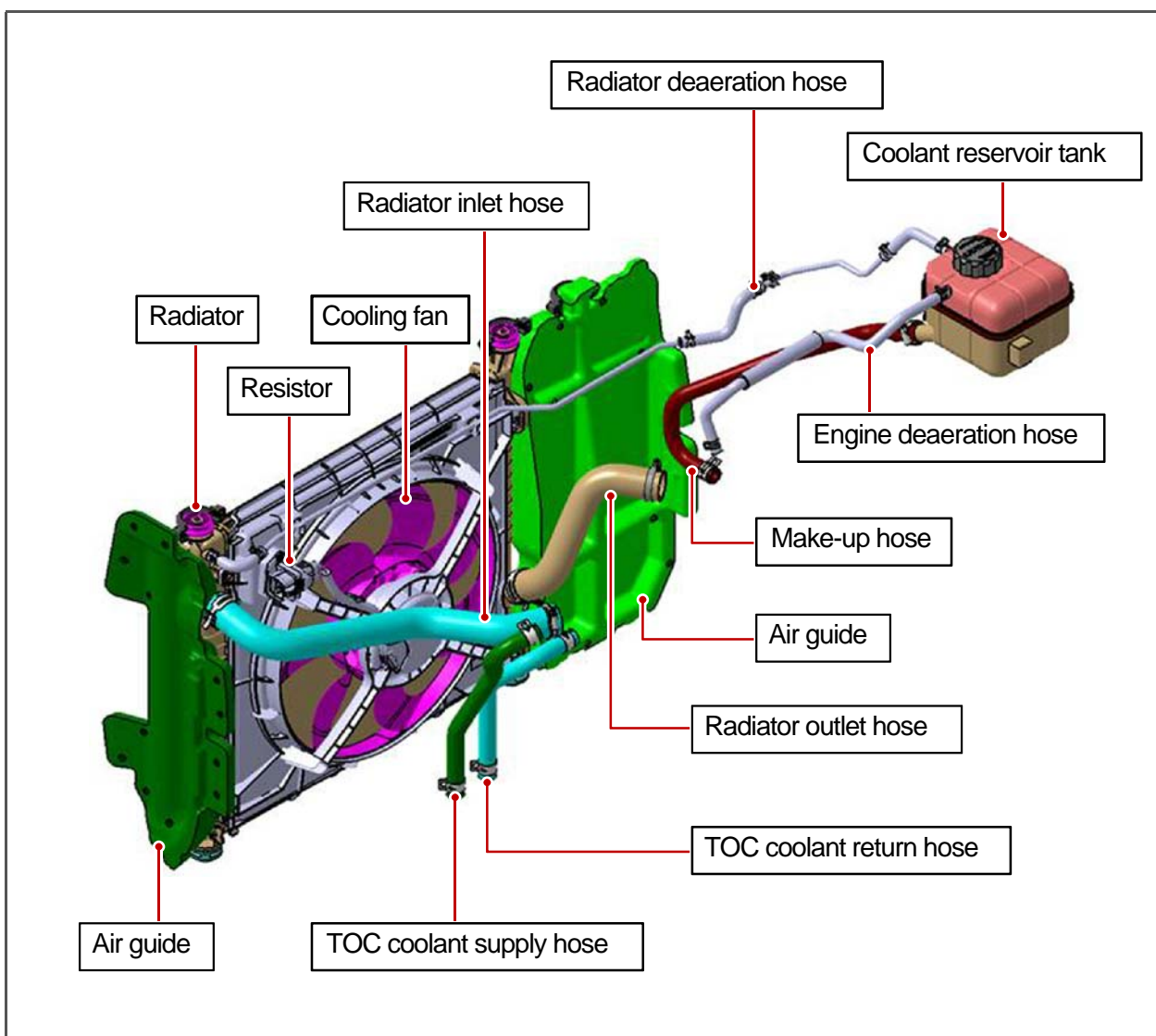
Modification basis	
Application basis	
Affected VIN	

OVERVIEW AND OPERATING PROCESS




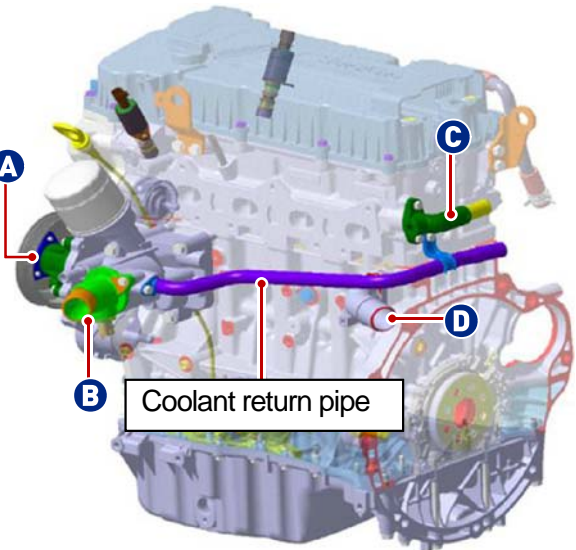
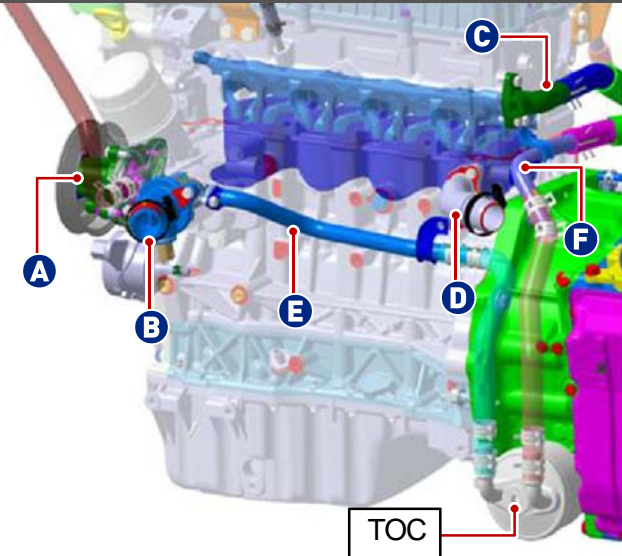



1. OVERVIEW

The cooling system of the engine dissipates the heat generated by the running engine. The coolant is forced to circulate by the water pump and cooled down in the radiator by heat exchange between the coolant and the fresh air taken in through the fan. Properly cooled down coolant in the radiator flows into the engine to maintain the optimized engine operating temperature. For a vehicle with A/T, the coolant also flows into the transmission oil cooler (TOC) of the A/T through the heater core and absorbs the heat enough to maintain the best operating temperature. The electric fan is equipped with a resistor. The engine ECU controls the 2 electric fan relays which determine the speed of the fan (high speed and low speed). It also controls the A/C compressor and electric fan according to the operation of A/C.

2. COMPONENTS



Modification basis	
Application basis	
Affected VIN	

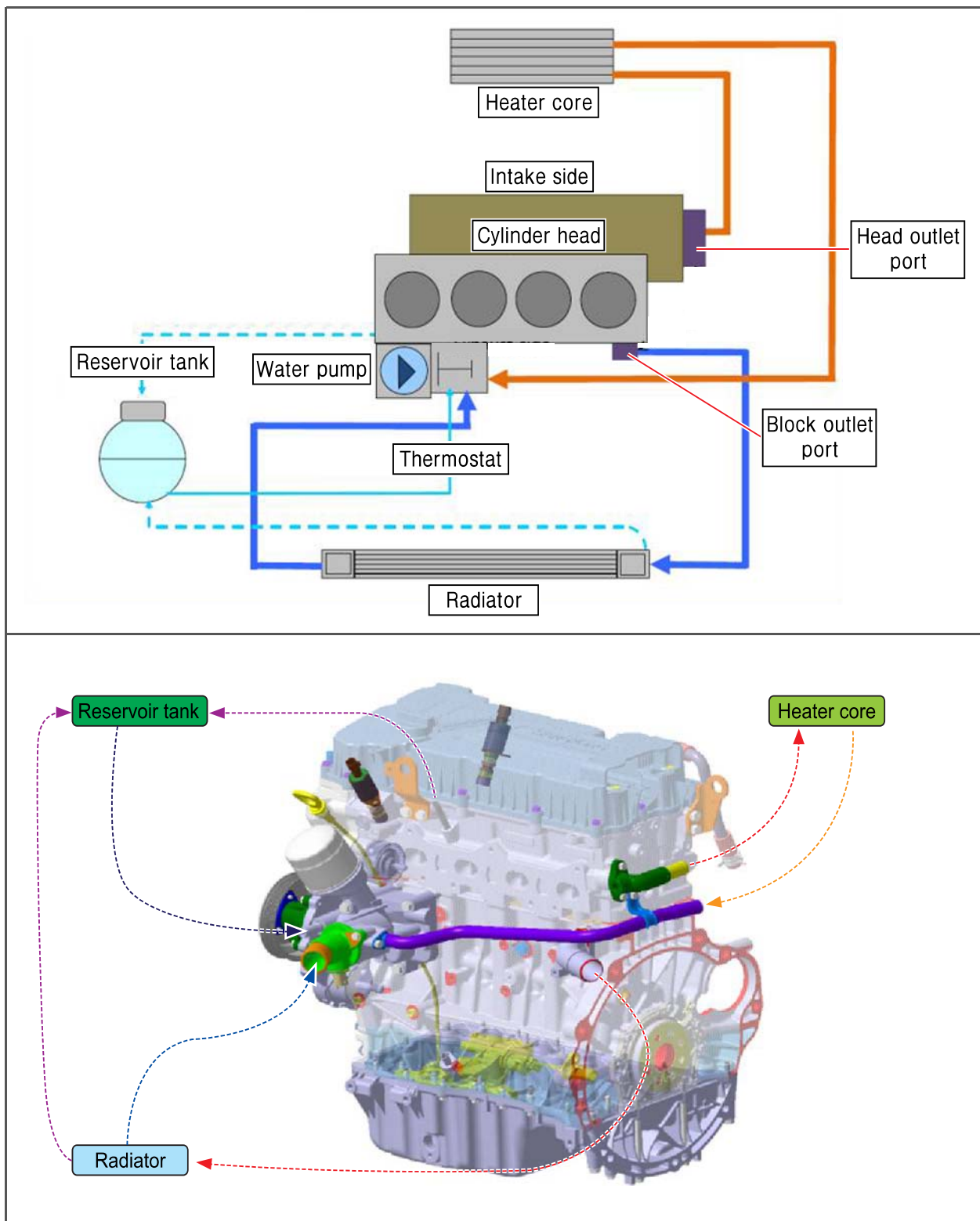
<div>A</div> <div>Water pump</div> <div></div>	<div>B</div> <div>Thermostat</div> <div></div>	<div>C</div> <div>Cylinder head outlet port</div> <div><div>Coolant temperature sensor</div><div></div></div>
<div>For a vehicle with M/T</div> <div><div>A</div><div>B</div><div>C</div><div>D</div><div>Coolant return pipe</div><div></div></div>		<div>For a vehicle with A/T</div> <div><div>A</div><div>B</div><div>C</div><div>D</div><div>E</div><div>F</div><div>TOC</div><div></div></div>
<div>D</div> <div>Cylinder block outlet port</div> <div></div>	<div>E</div> <div>TOC coolant return pipe</div> <div></div>	<div>F</div> <div>TOC coolant supply pipe</div> <div></div>

Modification basis	
Application basis	
Affected VIN	

3. OPERATING PROCESS

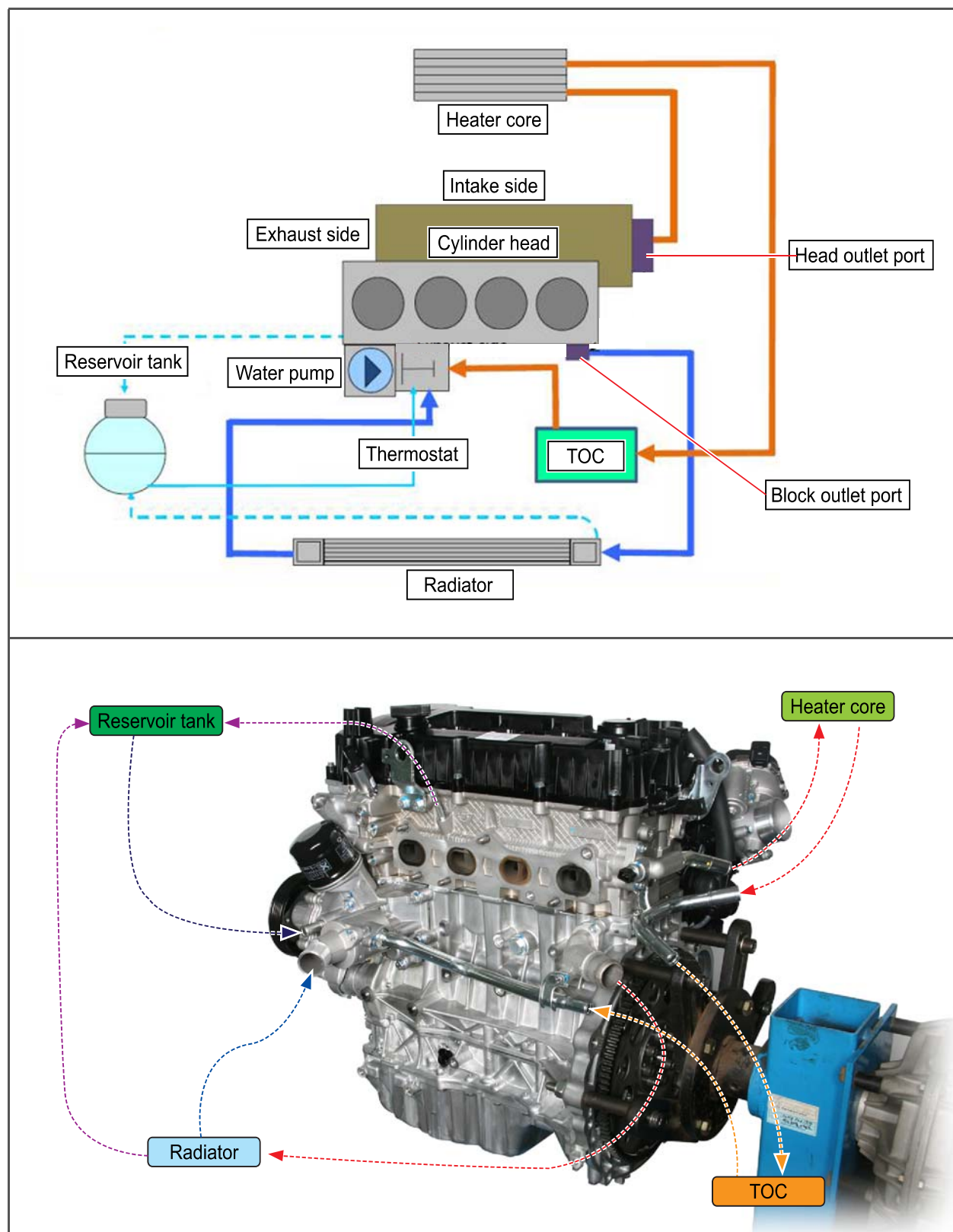
1) System Diagram

► For a vehicle with M/T

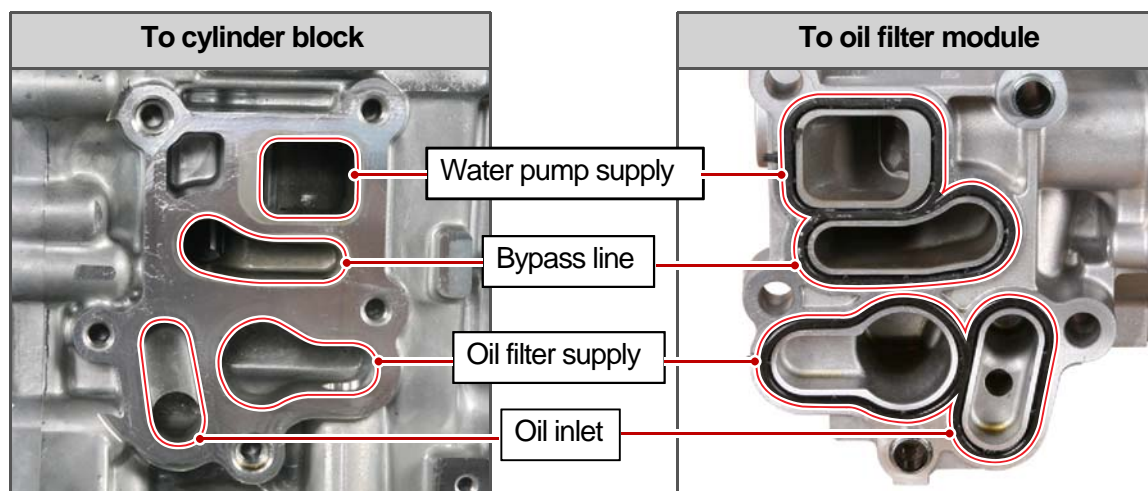
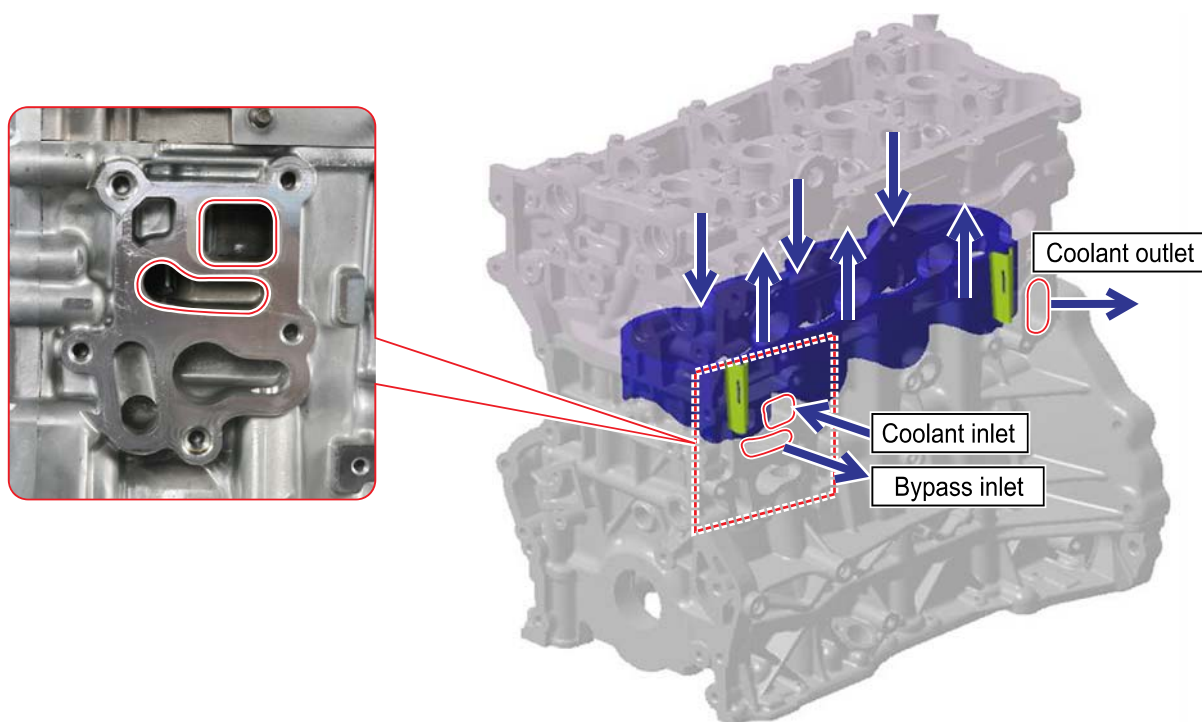


Modification basis	
Application basis	
Affected VIN	

► For a vehicle with A/T



► Flow in cooling system

**NOTE**

- Oil filter supply: Cylinder block to oil filter, Before filtering
- Oil inlet: Oil filter to cylinder block, After filtering

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Application basis	
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