Component Procedures: Thermostat

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Component Procedures: Thermostat

Parts and Labor (itype_189)

Parts

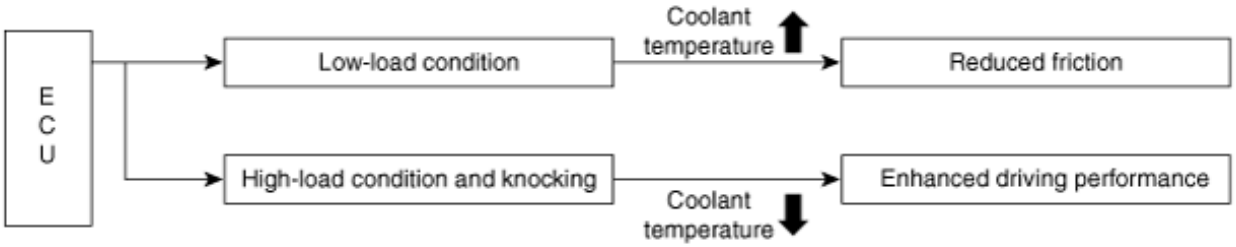
Qualifier	Part #	Name	Price	Note
Cooling System > Thermostat	255002E085	5 - Thermostat	143.23	

Labor

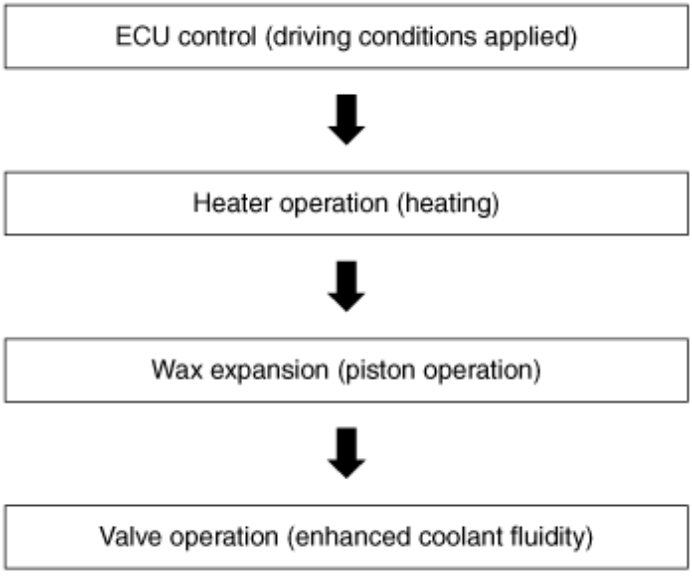
Operation	Qualifier Path	Skill	Std Hrs	Wty Hrs
Remove & Replace	Cooling System > Thermostat Gasket, R&R	B	1.2	0.0
Remove & Replace	Cooling System > Thermostat, R&R	B	1.2	0.0

Electric Thermostat (ECT) - Description and Operation (Article 45375)

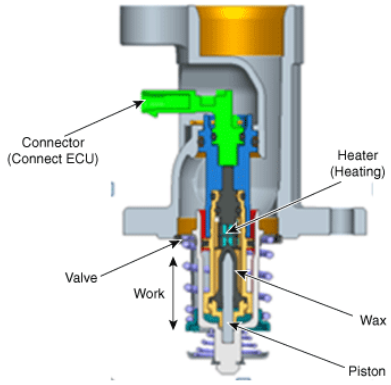
- Description and Operation
Electric Thermostat (ECT)
Overview



Operation Principle



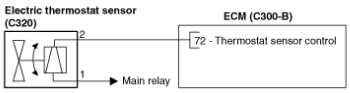
Electric Thermostat Structure



Electric Thermostat (ECT) - Schematic Diagrams (Article 45376)

- Circuit Diagram

[Circuit Diagram]

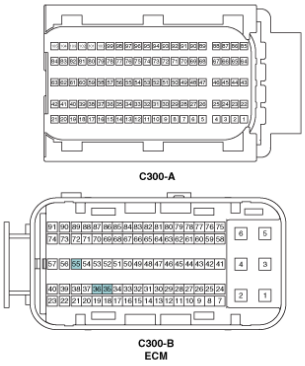


[Connect information]

Electric thermostat sensor (C320)

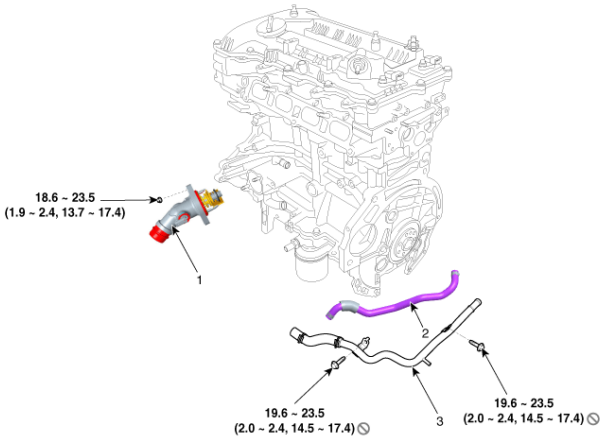
Terminal	Connection	Features
1	Main relay	Power (B+)
2	ECM C300-B (72)	Thermostat sensor control

[Harness Connector]



Electric Thermostat (ECT) - Components and Components Location (Article 45378)

- Components



Tightening torque : N.m (kgf.m, lb-ft)

1. Water inlet fitting & Thermostat 2. Bypass hose 3. Heater pipe & hose assembly

Electric Thermostat (ECT) - Repair Procedures (Article 45379)

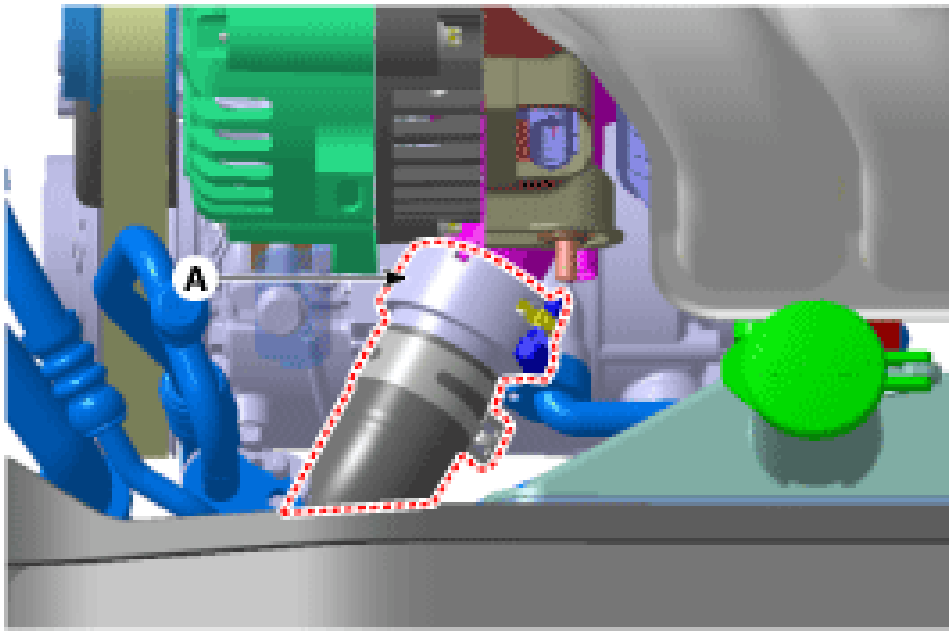
- Removal and Installation

Disassembly of the thermostat would have an adverse effect, causing a lowering of cooling efficiency. Do not remove the thermostat, even if the engine tends to overheat.

- Disassembly of the thermostat would have an adverse effect, causing a lowering of cooling efficiency. Do not remove the thermostat, even if the engine tends to overheat.

Thermostat

- Drain engine coolant so its level is below thermostat. (Refer to Cooling System - "Coolant")
- Disconnect the Radiator lower hose quick connector (A). When the hose detached, remove the holder clip (A) and then disconnect the quick connector.



When the hose detached, remove the holder clip (A) and then disconnect the quick connector.

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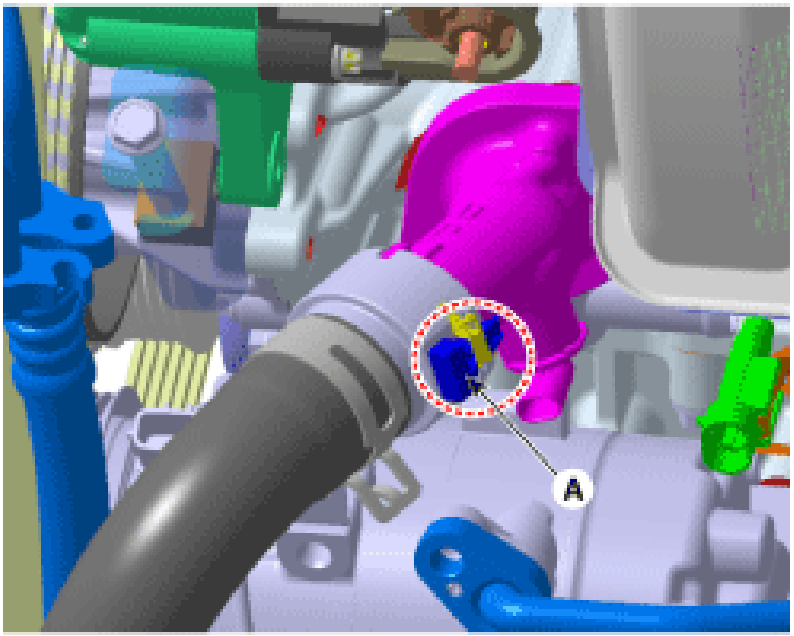
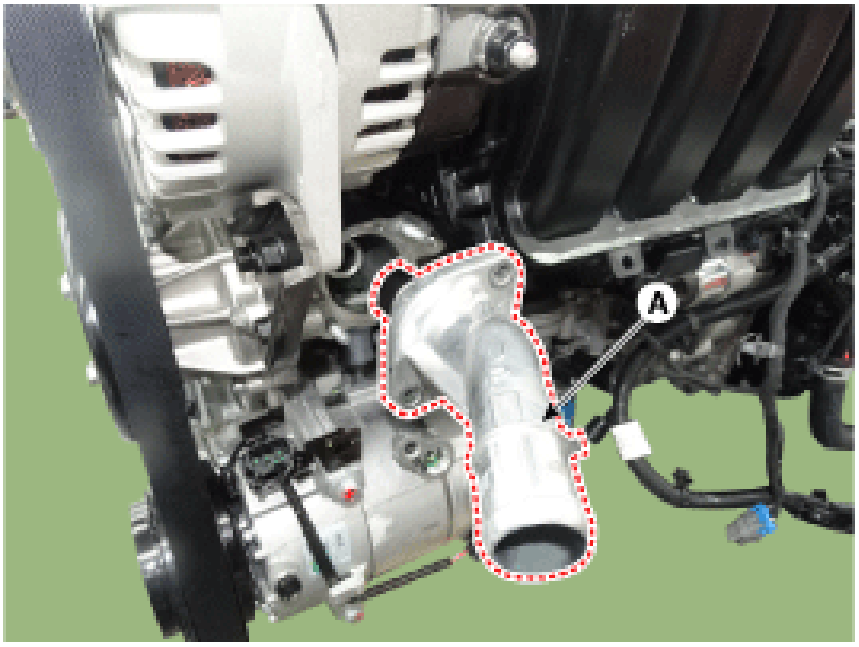


- Remove the water inlet fitting and thermostat (A). Tightening torque : 18.6 - 23.5 N.m (1.9 - 2.4 kgf.m, 13.7 - 17.4 lb-ft)



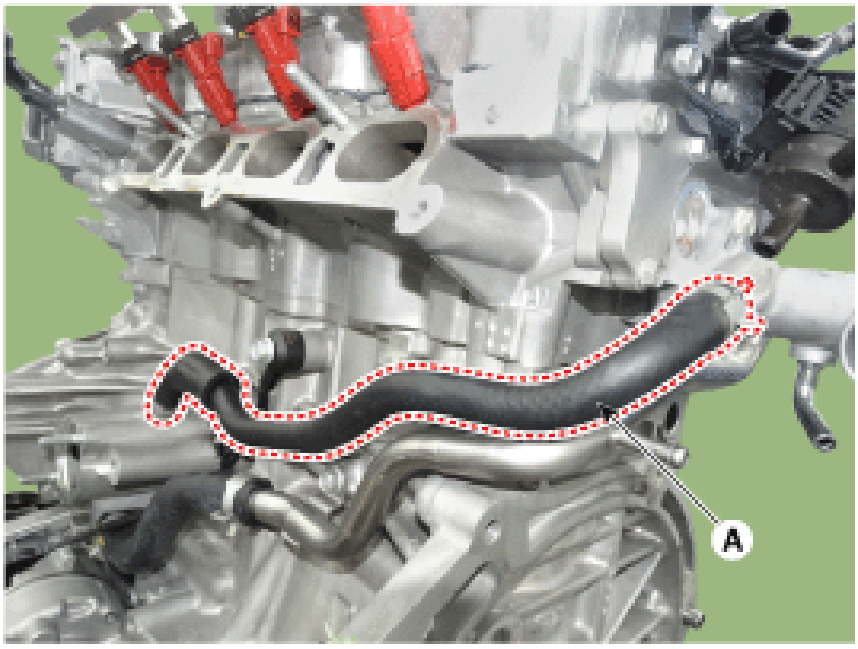
- Install in the reverse order of removal. Install the thermostat with the jiggle valve upward. When assembling the thermostat, place the thermostat on the housing with a protrusion of thermostat matching with a groove of the housing and install the inlet fitting. Be careful the thermostat doesn't get out of the groove on the housing. Clean surface on the rubber packing contact surface.

Install the thermostat with the jiggle valve upward. When assembling the thermostat, place the thermostat on the housing with a protrusion of thermostat matching with a groove of the housing and install the inlet fitting. Be careful the thermostat doesn't get out of the groove on the housing. Clean surface on the rubber packing contact surface.

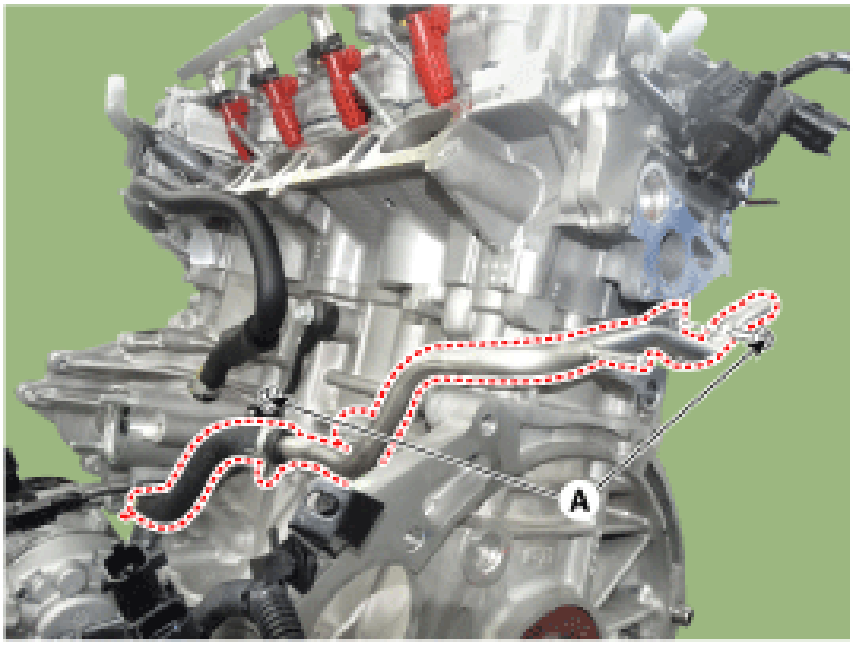
- Install the thermostat with the jiggle valve upward.
- When assembling the thermostat, place the thermostat on the housing with a protrusion of thermostat matching with a groove of the housing and install the inlet fitting. Be careful the thermostat doesn't get out of the groove on the housing.
- Clean surface on the rubber packing contact surface.
- Fill the engine coolant. (Refer to Cooling System - "Coolant")
- Start the engine and check for leaks.
- Recheck the coolant level.

Heater Pipe

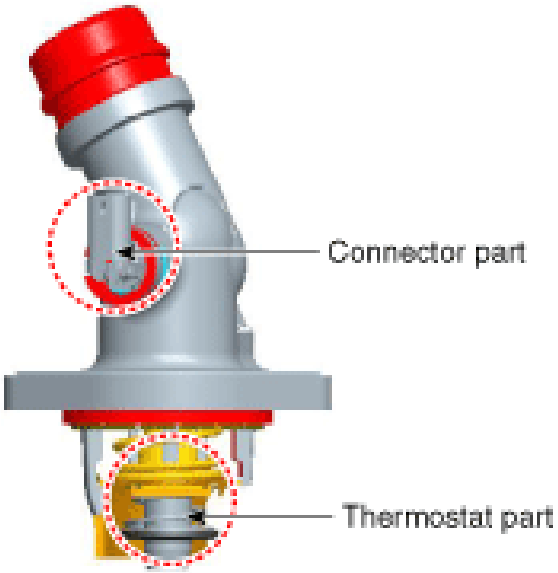
- Remove the intake manifold . (Refer to Intake and Exhaust System - "Intake Manifold")
- Disconnect the bypass hose (A).



- Unfasten the heater pipe mounting bolts (A) and then remove the heater pipe. Tightening torque : 19.6 - 23.5 N.m (2.0 - 2.4 kgf.m, 14.5 - 17.4 lb-ft) Do not reuse the seal bolts.



Do not reuse the seal bolts.
- Do not reuse the seal bolts.
- Install in the reverse order of removal.
- Inspection
- Immerse the only thermostat part in water and gradually heat the water. Don’t immerse connector part.



Don’t immerse connector part.
- Don’t immerse connector part.
- Check the valve opening temperature. If the valve opening temperature is not as specified, replace the thermostat. Valve opening temperature: 100 ± 2°C (212 ± 3.6°F) Full opening temperature: 115°C (239°F)
- Check the valve lift. If the valve lift is not as specified, replace the thermostat. Valve lift : 8 mm (0.3 in.) or more at 115°C (239°F)

All Technical Service Bulletins (itype_100)

Tsbs
- ENGINE THERMOSTAT REPLACEMENT DTC P0128 / P2181 (20-EM-002H, 2020/07/16)

Electric Thermostat (ECT) - Troubleshooting (Article 45380)

- Troubleshooting
Symptoms Possible Causes Remedy
Coolant leakage From the thermostat gasket Check the mounting nuts Check the torque of the mounting nuts Retighten the bolts and check leakage again.
- From the thermostat gasket
- Check the torque of the mounting nuts
- Retighten the bolts and check leakage again.
Check the gasket for damage Check gasket or seal for damage Replace gaskets and reuse the thermostat .
- Check gasket or seal for damage
- Replace gaskets and reuse the thermostat .
Cooled excessively Low heater performance (cool air blows-out) Thermogauge indicates 'LOW' Visually check after removing the radiator cap . Insufficient coolant or leakage. After refilling coolant, recheck.
- Low heater performance (cool air blows-out)
- Thermogauge indicates 'LOW'
- Insufficient coolant or leakage.
- After refilling coolant, recheck.
GDS check■Starting engine Check DTCs Check the fan motor performance as temperature varies. Check connection of the fan clutch or the fan motor. ■ If the fan clutch is always connected, there will be a noise at idle. Check the engine coolant sensor, wiring and connectors. Check the fan motor, the relay and the connector. Replace the componants.
- Check DTCs
- Check the fan motor performance as temperature varies.
- Check connection of the fan clutch or the fan motor.
- Check the engine coolant sensor, wiring and connectors.
- Check the fan motor, the relay and the connector.
- Replace the componants.
Remove the thermostat and inspect Check if there are dusts or chips in the thermostat valve. Check adherence

of the thermostat. Clean the thermostat valve and reuse the thermostat. Replace the thermostat, if it doesn't work properly.
- Check if there are dusts or chips in the thermostat valve.
- Check adherence of the thermostat.
- Clean the thermostat valve and reuse the thermostat.
- Replace the thermostat, if it doesn't work properly.

Heated excessively Engine overheated Thermogauge indicates 'HI' Visually check after removing the radiator cap. Insufficient coolant or leakage. ■ Be careful when removing a radiator cap of the overheated vehicle. Check air in cooling system . After refilling coolant, recheck. Check the cylinder head gaskets for damage and the tightening torque of the mounting bolts.
- Engine overheated
- Thermogauge indicates 'HI'
- Insufficient coolant or leakage. ■ Be careful when removing a radiator cap of the overheated vehicle.
- Check air in cooling system .
- Check the cylinder head gaskets for damage and the tightening torque of the mounting bolts.

GDS check■Starting engine Check DTCs Check the fan motor performance as temperature varies. Check if the fan clutch slips. Check the water pump adherence or impeller damaged. Check the engine coolant sensor, wiring and connectors. Check the fan motor, the relay and the connector. Replace the fan clutch, if it doesn't work properly. Replace the water pump, if it doesn't work properly.
- Check if the fan clutch slips.
- Check the water pump adherence or impeller damaged.
- Replace the fan clutch, if it doesn't work properly.
- Replace the water pump, if it doesn't work properly.

Immerse the thermostat in boiling water and inspection. After removing the thermostat, check it works properly. ■ Check the thermostat opens at the valve opening temperature. Replace the thermostat, if it doesn't work properly.
- After removing the thermostat, check it works properly.