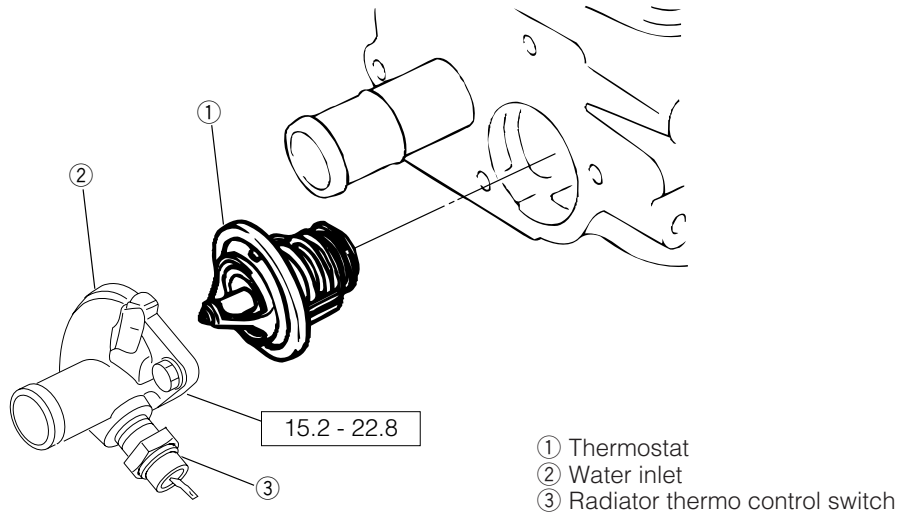


COOLING SYSTEM
(EJ-VE)

THERMOSTAT CO- 8
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THERMOSTAT COMPONENTS

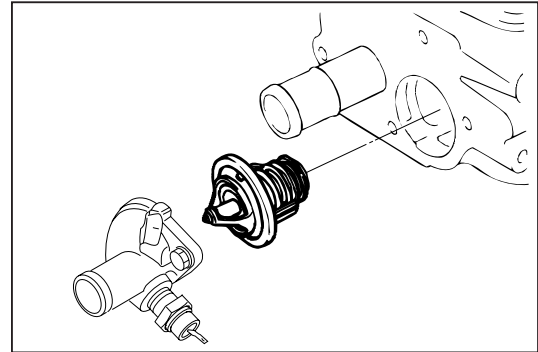
□ : Tightening torque
Unit : N·m



MCO00024-00022

REMOVAL

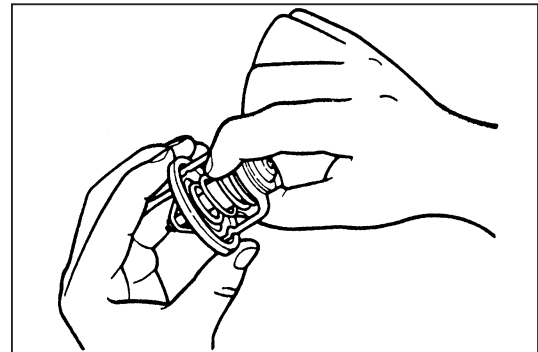
1. Drain the engine coolant. (Refer to page CO-2.)
2. Disconnect the radiator hose No. 2 from the water inlet.
3. Remove the water inlet from the cylinder head.
4. Remove the thermostat from the water inlet.



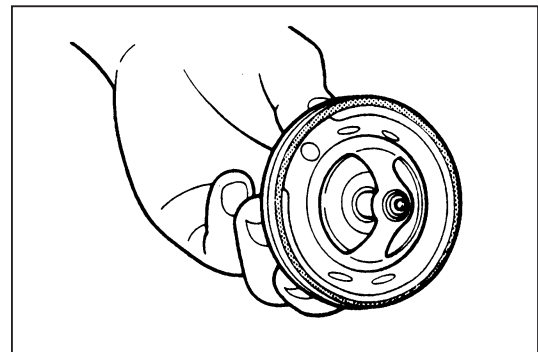
MCO00025-00023

INSPECTION

1. Ensure that the thermostat valve is closed at room temperature of 20°C and the spring has no play.
Replace the thermostat if the valve is open or the spring has a play.
2. Check the rubber grommet of the thermostat for damage or crack.
Replace the thermostat if the rubber grommet exhibits damage or crack.



MCO00026-00024



MCO00027-00025

3. Check of thermostat valve opening temperature
 - (1) Immerse the thermostat in water, as indicated in the right figure. Heat the water gradually. Ensure that the temperature at which the valve begins to open conforms to the specified value.

Specified Valve Opening Temperature: 84°C

If the temperature fails to conform to the specification, replace the thermostat with a new one.

- (2) Under the condition described in the step (1), heat the water to 97°C. At this time, ensure that the valve lift is the specified value or more.

Specified Value: More than 8.5 mm

CAUTION:

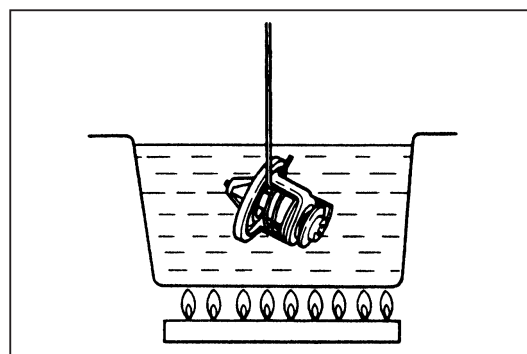
- Be very careful not to get scalded, for the heated thermostat will be very hot.

INSTALLATION

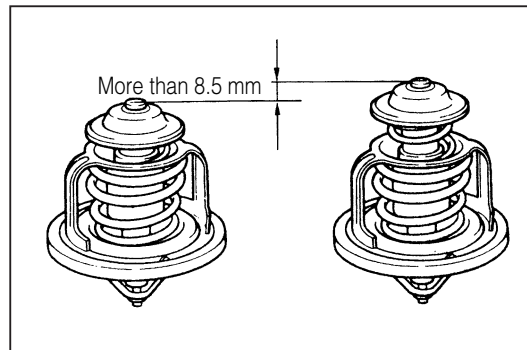
1. Install the thermostat to the water inlet.

NOTE:

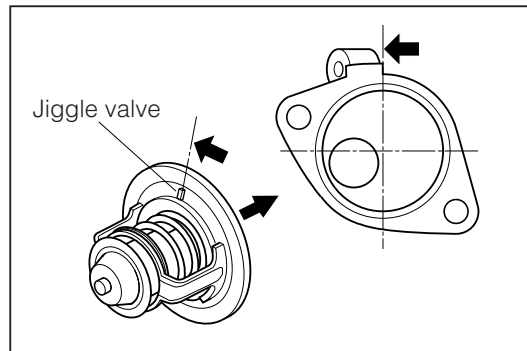
- Be sure to assemble the thermostat at the position indicated in the right figure.



MCO00028-00026



MCO00029-00027

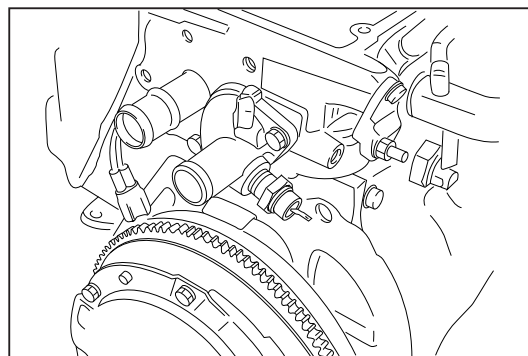


MCO00030-00028

2. Install the water inlet to the cylinder head.

Tightening Torque: 15.2 - 22.8 N·m

3. Connect the radiator hose No. 2 to the water inlet.
4. Fill the engine coolant. (Refer to page CO-3)
5. Start the engine. Ensure that no water leakage is present.

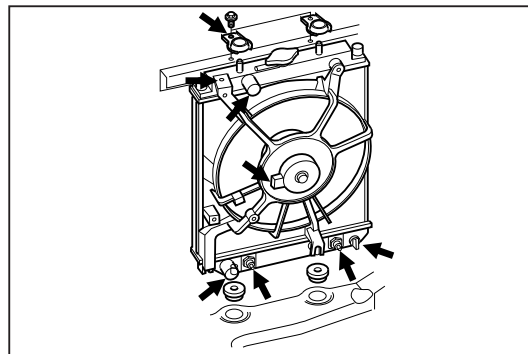


MCO00031-00029

RADIATOR

Removal

1. Separate the radiator and air conditioner condenser.
2. Disconnect the connector of the radiator fan motor.
3. Drain the engine coolant.
4. Remove the engine coolant reservoir tank from the radiator.
5. Disconnect the automatic transmission oil cooler tube from the radiator.
6. Disconnect the radiator inlet and outlet hoses from the radiator.
7. Remove the radiator upper support bracket.
8. Remove the radiator from the vehicle.
9. Remove the radiator lower support from the front frame.



MCO00032-00030

Installation

1. Install the radiator lower support to the front frame.
2. Install the radiator to the vehicle.
3. Install the radiator upper support bracket.
Tightening Torque: 10.0 - 15.0 N·m
4. Connect the radiator inlet and outlet hoses to the radiator.
5. Connect the automatic transmission oil cooler tube to the radiator.
Tightening Torque: 14.2 - 21.2 N·m
6. Install the engine coolant reservoir tank to the radiator.
Tightening Torque: 6.4 - 9.6 N·m
7. Fill the engine coolant.
8. Connect the connector of the radiator fan motor.
9. Install the air conditioner condenser to the radiator.

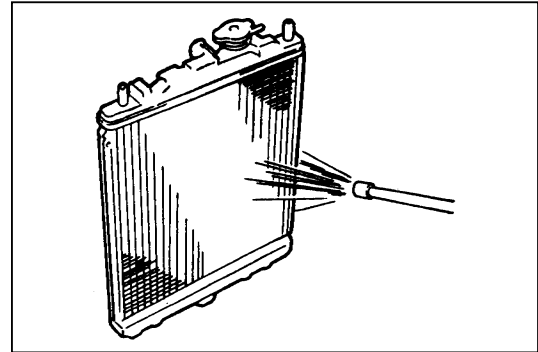
MCO00033-00000

CLEANING OF RADIATOR

Using water or steam cleaner, remove mud and dirt from the radiator core.

CAUTION:

- When using a high-pressure type cleaner, be very careful not to deform the radiator core fins.
- Keep a distance of more than 40 - 50 cm between the radiator core and the cleaner nozzle when the cleaner nozzle pressure is 2.9 - 4.9 MPa.
- Also, the injection angle of pressurized water should be right angles to the radiator.
- Failure to observe this caution will cause the radiator fins to be deformed.



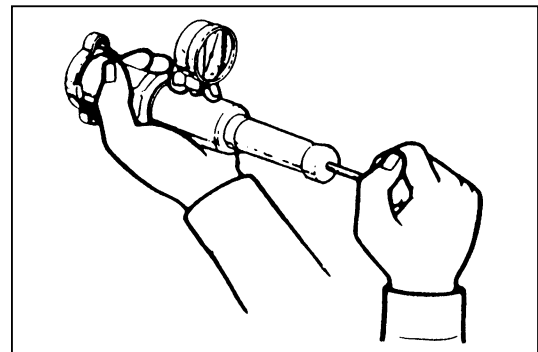
MCO00034-00031

INSPECTION OF RADIATOR

1. Check of radiator cap
 - (1) Check the radiator cap by means of a radiator cap tester to see if the relief valve opens at a pressure of 108 ± 15 kPa.
If the radiator cap fails to conform to the specification, replace the radiator cap.

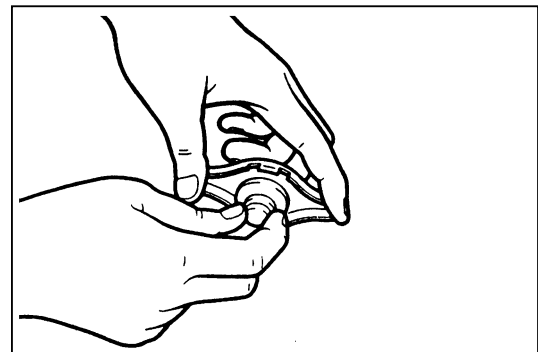
CAUTION:

- Never open the radiator cap when the engine is still hot.
- Failure to observe this caution will cause you to get scalded.



MCO00035-00032

- (2) Check the seal packing of the radiator cap for damage.
Replace the radiator cap with a new one, if any damage exists.
- (3) Lift the valve at the vacuum side with your fingers.
Ensure that the valve is functioning properly.
Replace the radiator cap with a new one, if the valve fails to function.



MCO00036-00033

2. Check of cooling system for leakage
 - (1) Fill the radiator with coolant. Attach a radiator cap tester.
 - (2) Warm up the engine.
 - (3) Apply a pressure of 122.7 kPa to the cooling system by means of a radiator tester.

If the pressure drops, check the hoses, radiator, water pump and heater for evidence of leakage.

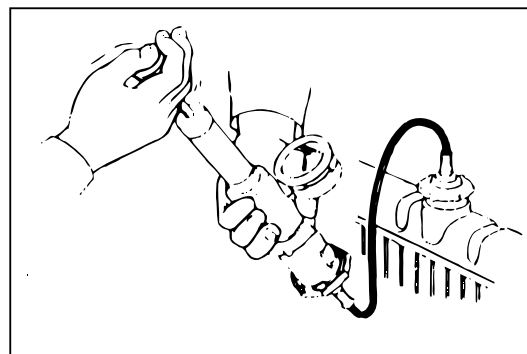
If no external leakage is found, check the heater core, cylinder block, cylinder head, oil cooler and throttle body for evidence of leakage.

Check the hoses for deterioration, cracks, bulge or damage.

Replace the defective part(s) if necessary.
 - (4) Remove the radiator cap tester from the radiator.

WARNING:

- Never open the radiator cap and/or drain cap when the coolant is still hot. Failure to observe this caution will cause you to get scalded.

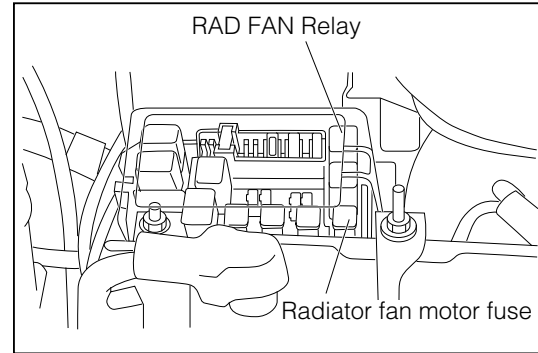


MCO00037-00034

ELECTRIC COOLING FAN

IN-VEHICLE INSPECTION

1. If the fan motor is rotating when the coolant temperature is below 83°C and the ignition switch is at the off position, check the RAD FAN relay and the wiring harness for short.
 - (1) Disconnect the RAD FAN relay from the relay Box (R/B).
 - (2) If the fan motor stops, check the RAD FAN relay.
 - (3) If the fan motor is rotating, check the wiring harness for short.
2. Turn on the ignition key switch. Ensure that the fan is not rotating when the coolant is cold (below 83°C). If the fan motor is rotating, check the radiator thermo control switch.
3. Warm the engine, until the radiator coolant temperature rises above 95°C. Ensure that the fan motor is rotating. If the fan motor is not rotating, check the RAD FAN relay, wiring harness, radiator fan motor fuse, radiator fan motor and radiator thermo control switch.

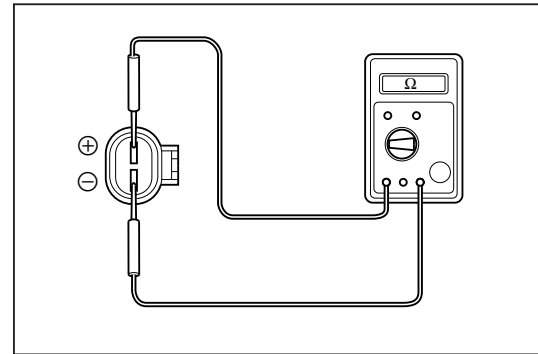


MCO00038-00035

RADIATOR FAN MOTOR CHECK

1. Disconnect the connector of the radiator fan motor.
2. Check resistance between the terminals of the radiator fan motor.

Specified Value: Approx. 1.0 Ω



MCO00039-00036

RADIATOR FAN MOTOR RELAY CHECK

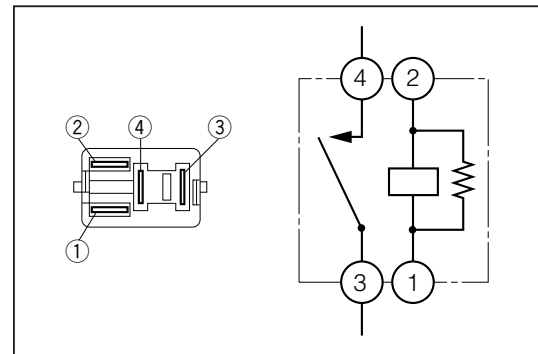
1. Check that there is continuity between the terminals ① and ②.

Specified Value: 109 - 113 Ω

2. Check that there is continuity between the terminals ③ and ④ when a voltage of 12 V is applied between the terminals ① and ②.

NOTE:

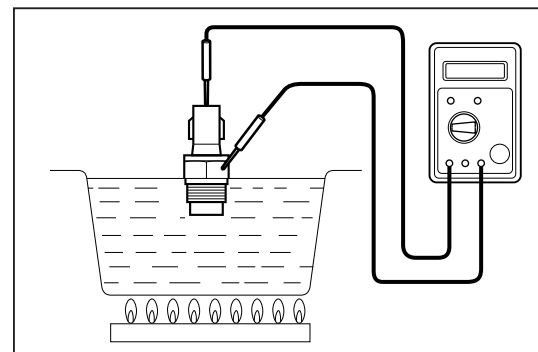
- If the trouble has not been solved by repairing the relay, check wire harness.



MCO00040-00037

RADIATOR THERMO CONTROL SWITCH CHECK

1. Ensure that continuity exists between the terminals when the water temperature is above 95°C. If no continuity exists, replace the radiator thermo control switch.
2. Gradually drop the water temperature. Ensure that continuity no longer exists between the terminals when the water temperature drops below 83°C. If continuity still exists, replace the radiator thermo control switch.



MCO00041-00038

SPECIFICATIONS

Coolant capacity (w/heater, excluding reserve tank)	MT	3.0 ℓ
	AT	2.9 ℓ
Reserve tank capacity	Full	0.45 ℓ
	Low	0.25 ℓ
Thermostat	Valve opening temperature	84°C
	Valve lift	8.5 mm or more at 97°C
Radiator cap	Relief valve opening pressure	108 ± 15 kPa (1.1 ± 0.15 kg/cm ²)

MCO00042-00000

TIGHTENING TORQUE

Components	N·m	kgf·m
Water pump cover × Water pump body	4.9 - 8.9	0.5 - 0.7
Water pump body × Cylinder block (except alternator adjusting bar attaching bolt)	15.2 - 22.8	1.56 - 2.34
Water pump drain bolt × Water pump	9.8 - 19.6	1.0 - 2.0
Adjusting bar × Cylinder block	23.2 - 34.8	2.4 - 3.6
Water inlet × Cylinder head	15.2 - 22.8	1.56 - 2.34
Fan motor × Fan shroud	1.47 - 3.33	0.18 - 0.34
Fan motor × Fan	4.90 - 7.44	0.50 - 0.76
Fan shroud × Radiator	6.4 - 9.6	0.64 - 0.96
Coolant reserve tank × Fan motor	6.4 - 9.6	0.64 - 0.96
Oil cooler tube × Radiator (A/T)	14.2 - 21.2	1.4 - 2.2

MCO00043-00000

SST

Shape	Part No.	Part name	Remarks
	09238-87201-000	Remover	

MCO00044-00039