
ENGINE COOLING

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GENERAL

OUTLINE OF CHANGE

The following service procedures have been added for the lineup of 4G64-GDI engines. The other items are the same as the procedures for the 4G63-MPI engines.

SERVICE SPECIFICATIONS

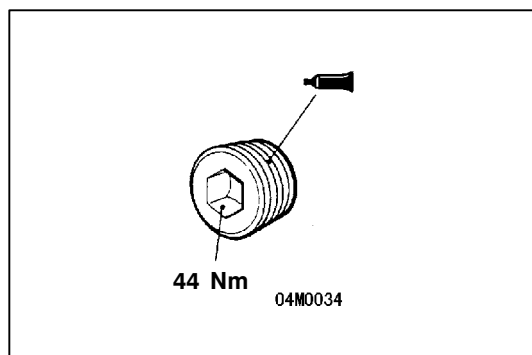
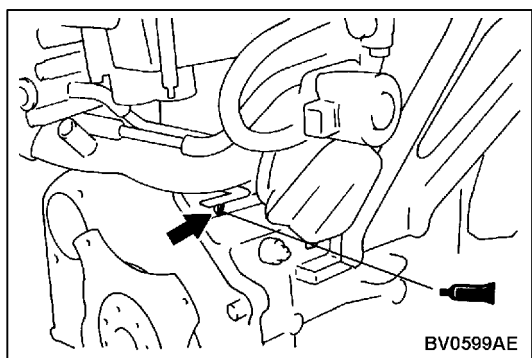
Items		Standard value	Limit
Thermostat	Valve opening temperature of thermostat °C	85 ± 1.5	–
	Full-opening temperature of thermostat °C	98	–
	Valve lift (at 95°C) mm	8.5 or more	–

LUBRICANT

Items	Quantity L
MITSUBISHI GENUINE COOLANT or equivalent	7

SEALANTS

Items	Specified sealant	Remarks
Cylinder block drain plug	3M Nut Locking Part No. 4171 or equivalent	Drying sealant
Thermostat case assembly	Mitsubishi Genuine Parts No. MD970389 or equivalent	Semi-drying sealant



ON-VEHICLE SERVICE

ENGINE COOLANT REPLACEMENT

1. Drain the engine coolant by removing the drain plug and then the radiator cap.
2. Remove the drain plug from the cylinder block to drain the engine coolant.
3. Remove the reserve tank to drain the engine coolant.
4. When the engine coolant has drained, pour in water from the radiator cap to clean the engine coolant line.
5. Coat the thread of the cylinder block drain plug with the specified sealant and tighten to the specified torque.
Specified sealant:
3M Nut Locking Part No. 4171 or equivalent
6. Securely tighten the radiator drain plug.
7. Install the reserve tank.

8. Slowly pour the engine coolant into the mouth of the radiator until the radiator is full, and pour also into the reserve tank up to the FULL line.

Recommended antifreeze:

MAZDA GENUINE COOLANT or equivalent

Quantity: 7 L

Caution

Do not use alcohol or methanol anti-freeze or any engine coolants mixed with alcohol or methanol anti-freeze. The use of an improper anti-freeze can cause the corrosion of the aluminium components.

NOTE

For Norway, the non-amine type of antifreeze should be used.

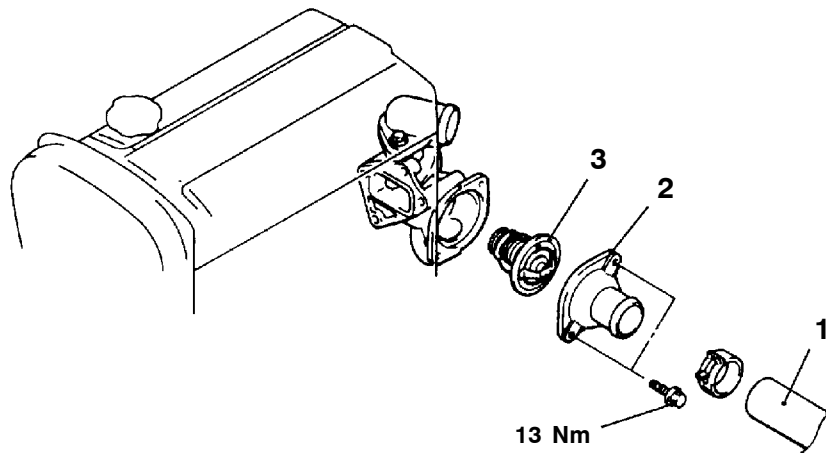
9. Install the radiator cap securely.
10. Start the engine and warm the engine until the thermostat opens. (Touch the radiator hose with your hand to check that warm water is flowing.)
11. After the thermostat opens, race the engine several times, and then stop the engine.
12. Cool down the engine, and then pour engine coolant into the reserve tank until the level reaches the FULL line. If the level is low, repeat the operation from step 9.

THERMOSTAT

REMOVAL AND INSTALLATION

Pre-removal and Post-installation Operation

- Engine Coolant Draining and Supplying (Refer to P.14-2.)
- Air Intake Duct Removal and Installation



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Removal steps

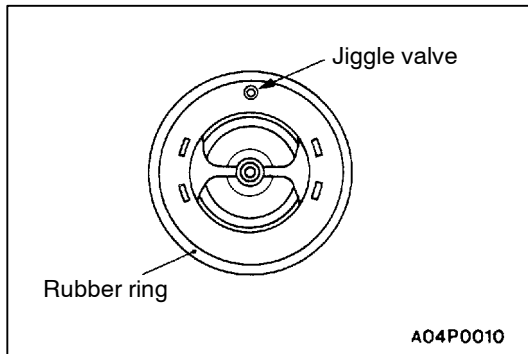
◀A▶ ▶B▶

1. Radiator lower hose connection
2. Water inlet fitting

▶A▶ 3. Thermostat

REMOVAL SERVICE POINT**◀A▶ RADIATOR LOWER HOSE DISCONNECTION**

After making mating marks on the radiator hose and the hose clamp, disconnect the radiator hose.

**INSTALLATION SERVICE POINTS****▶A◀ THERMOSTAT INSTALLATION**

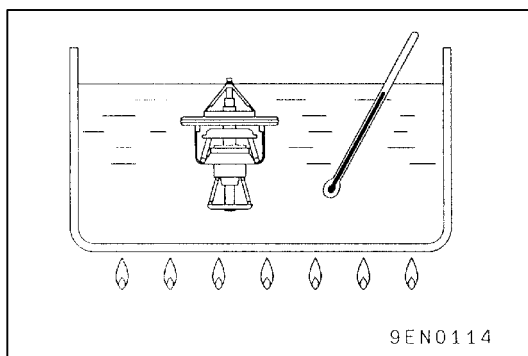
Install the thermostat so that the jiggle valve is facing straight up.

Caution

Make absolutely sure that no oil is adhering to the rubber ring of the thermostat. In addition, be careful not to fold over or scratch the rubber ring when inserting. If the rubber ring is damaged, replace the thermostat.

▶B◀ RADIATOR LOWER HOSE CONNECTION

1. Insert each hose as far as the projection of the water inlet fitting.
2. Align the mating marks on the radiator hose and hose clamp, and then connect the radiator hose.

**INSPECTION****THERMOSTAT CHECK**

1. Immerse the thermostat in water, and heat the water while stirring. Check the thermostat valve opening temperature.

Standard value:

Valve opening temperature: $85 \pm 1.5^{\circ}\text{C}$

2. Check that the amount of valve lift is at the standard value when the water is at the full-opening temperature.

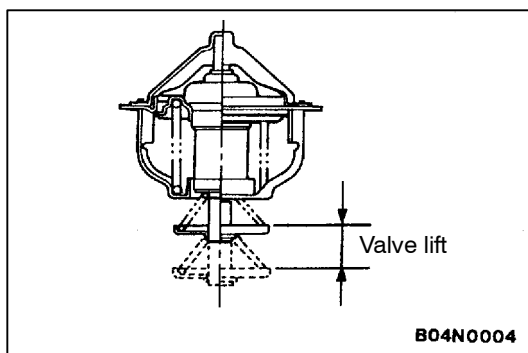
Standard value:

Full-opening temperature: 98°C

Amount of valve lift: 8.5 mm or more

NOTE

Measure the valve height when the thermostat is fully closed, and use this measurement to calculate the valve height when the thermostat is fully open.

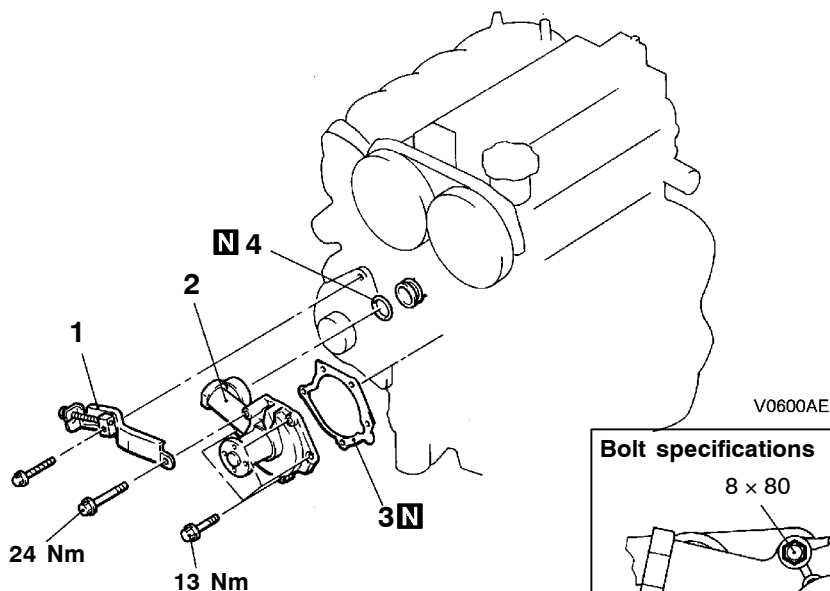


WATER PUMP

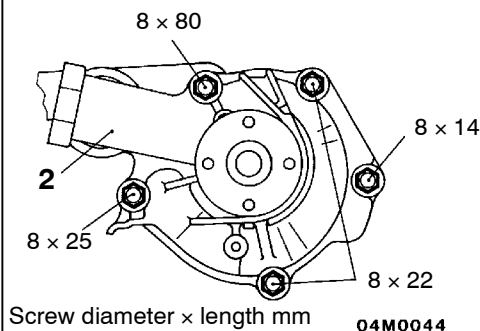
REMOVAL AND INSTALLATION

Pre-removal and Post-installation Operation

- Engine Coolant Draining and Supplying (Refer to P.14-2.)
- Engine Cover Removal
- Timing Belt Removal and Installation (Refer to GROUP 11D.)



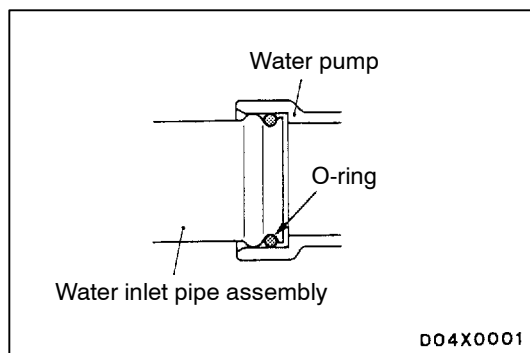
Bolt specifications



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Removal steps

1. Alternator brace
2. Water pump
3. Water pump gasket
4. O-ring



INSTALLATION SERVICE POINT

▶◀ O-RING INSTALLATION

Insert the O-ring to the water inlet pipe assembly, and coat the outer circumference of the O-ring with water or engine coolant.

Caution

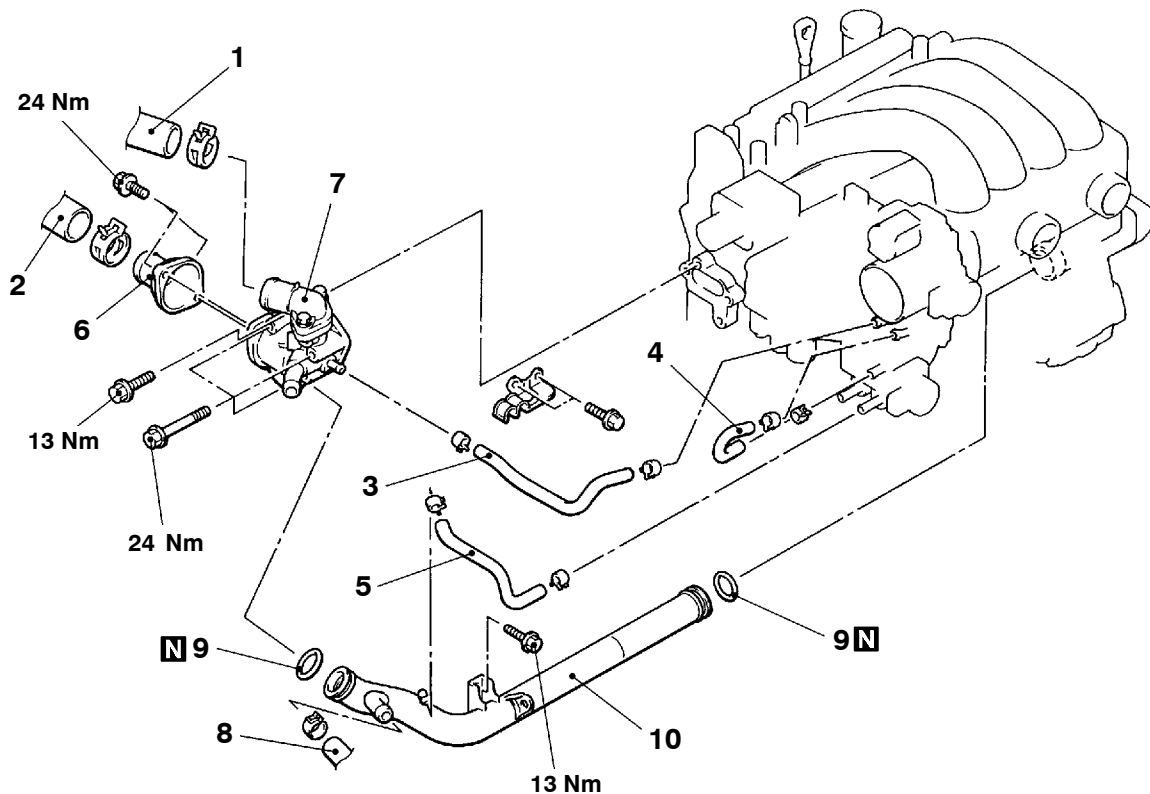
Do not allow engine oil or other greases to adhere to the O-ring

WATER HOSE AND WATER PIPE

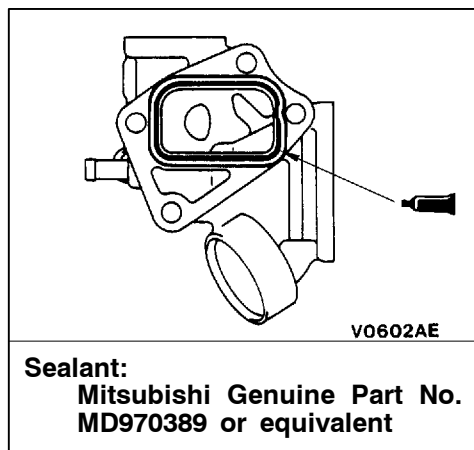
REMOVAL AND INSTALLATION

Pre-removal and Post-installation Operation

- Engine Coolant Draining and Supplying (Refer to P.14-2.)
- Engine Cover Removal and Installation
- Air Cleaner Assembly Removal and Installation



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Removal steps



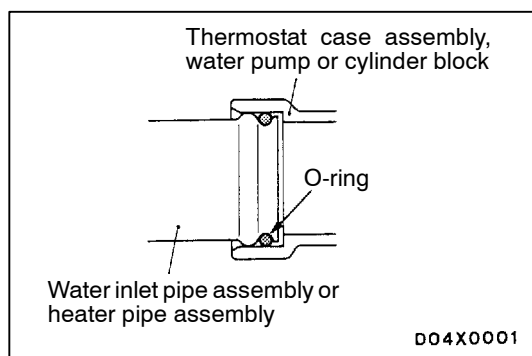
1. Radiator upper hose connection
2. Radiator lower hose connection
3. Water hose
4. Water hose
5. Water hose



6. Water inlet fitting
7. Thermostat case assembly
8. Heater hose connection
9. O-ring
10. Water inlet pipe

REMOVAL SERVICE POINT**◀A▶ RADIATOR UPPER HOSE/RADIATOR LOWER HOSE DISCONNECTION**

After making mating marks on the radiator hose and the hose clamp, disconnect the radiator hose.

**INSTALLATION SERVICE POINTS****▶A◀ O-RING INSTALLATION**

Insert the O-ring to the water inlet pipe assembly or the heater pipe assembly and coat the outer circumference of the O-ring with water or engine coolant.

Caution

Do not allow engine oil or other greases to adhere to the O-ring

▶B◀ THERMOSTAT CASE ASSEMBLY INSTALLATION

Squeeze out the sealant from the tube evenly and apply it so that there is not too much sealant and no places without sealant.

Specified Sealant:

Mitsubishi Genuine Parts No. MD970389 or equivalent

▶C◀ RADIATOR LOWER HOSE/RADIATOR UPPER HOSE CONNECTION

1. Insert each hose as far as the projection of the water inlet fitting or water outlet fitting.
2. Align the mating marks on the radiator hose and hose clamp, and then connect the radiator hose.

INSPECTION**WATER PIPE AND HOSE CHECK**

Check the water pipe and hose for cracks, damage, clog and replace them if necessary.