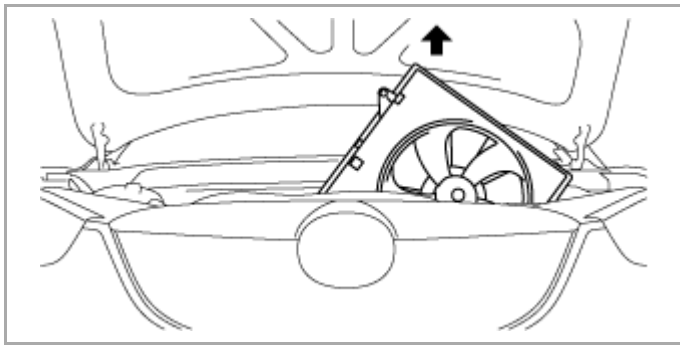


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2006 MAZDA RX-8 OEM Service and Repair Workshop Manual

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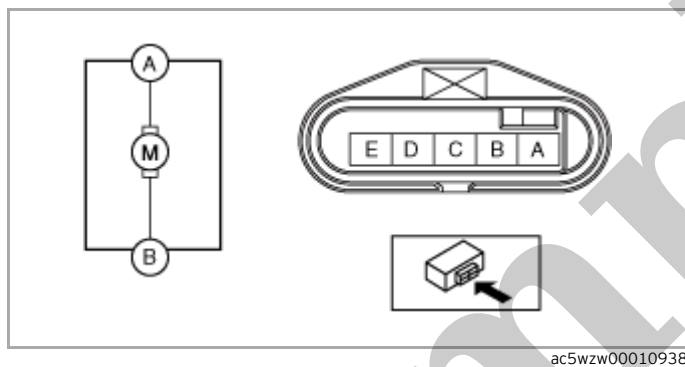
Sample

COOLANT CONTROL VALVE INSPECTION [SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION)]

SM2897352

id0112t222490

1. Disconnect the negative battery terminal. (See [NEGATIVE BATTERY TERMINAL DISCONNECTION/CONNECTION.](#))
2. Disconnect the coolant control valve connector. (See [COOLANT CONTROL VALVE REMOVAL/INSTALLATION \[SKYACTIV-G 2.5 \(WITHOUT CYLINDER DEACTIVATION\)\].](#))
3. Inspect for continuity between coolant control valve terminals A-B.

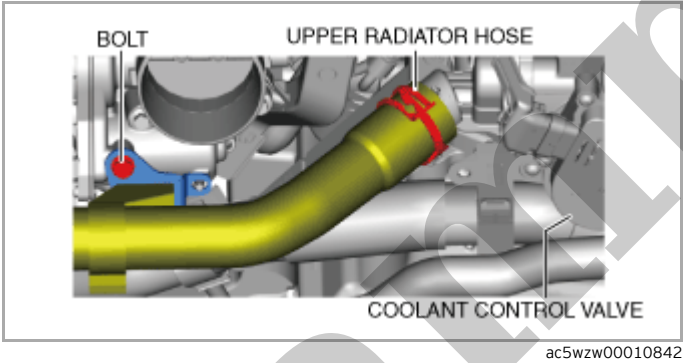


- If there is continuity, the coolant control valve is normal.
- If there is no continuity, replace the coolant control valve. (See [COOLANT CONTROL VALVE REMOVAL/INSTALLATION \[SKYACTIV-G 2.5 \(WITHOUT CYLINDER DEACTIVATION\)\].](#))

1	Upper radiator hose (See Upper radiator hose removal note.) (See Upper radiator hose installation note.)
2	Clip
3	Heater hose (Coolant control valve side) (See Heater hose installation note.)
4	Water hose (Coolant control valve side) (See OIL COOLER REMOVAL/INSTALLATION [FW6A-EL, FW6AX-EL].)
5	Water hose (Flange side) (See OIL COOLER REMOVAL/INSTALLATION [FW6A-EL, FW6AX-EL].)
6	Lower radiator hose component (See Lower radiator hose component removal note.) (See Lower radiator hose component installation note.)
7	Coolant control valve connector
8	Coolant control valve (See Coolant control valve removal note.) (See Coolant control valve installation note.)

Upper radiator hose removal note

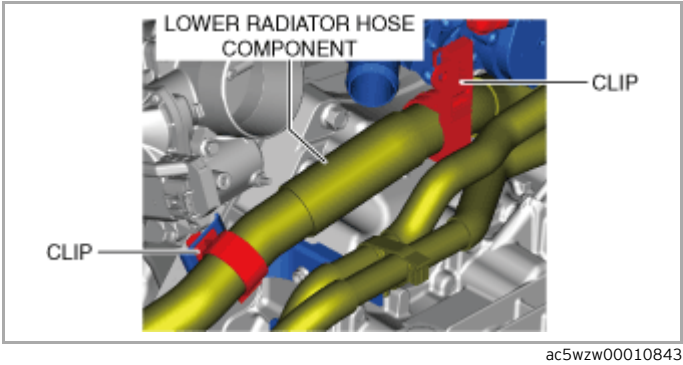
1.Remove the bolt shown in the figure.



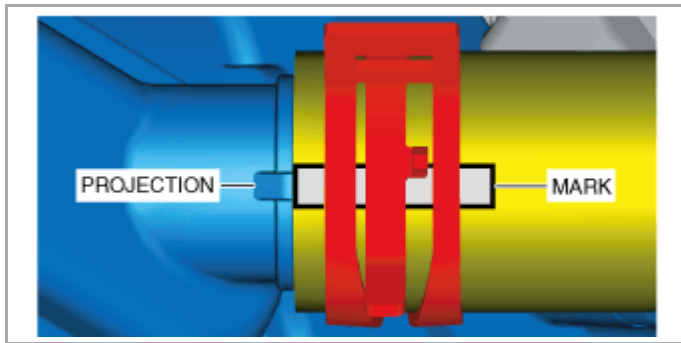
2.Disconnect the upper radiator hose.

Lower radiator hose component removal note

1.Remove the clips.



2.Remove the nuts shown in the figure and set the lower radiator hose component aside.

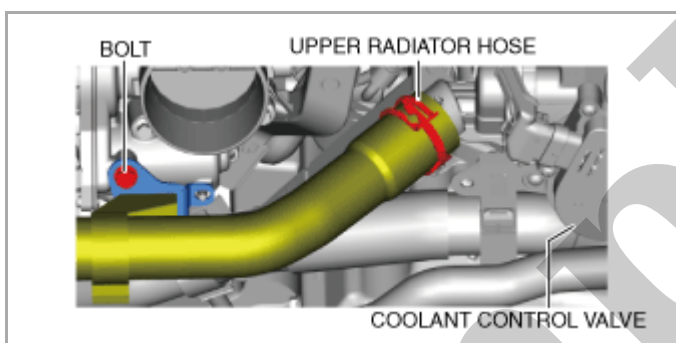


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Upper radiator hose installation note

1. Install the upper radiator hose using the following procedure:

(1) Tighten the bolt shown in the figure.

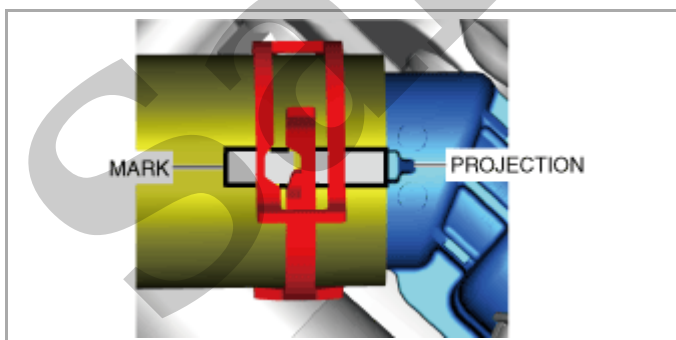


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Tightening torque

8–10 N·m {82–101 kgf·cm, 71–88 in·lbf}

(2) Connect the upper radiator hose to the coolant control valve so that the projection position is aligned with the mark.



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COOLING SYSTEM SERVICE WARNINGS [SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION)]

SM2897355

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Warning

- Never remove the cooling system cap or loosen the radiator drain plug while the engine is running, or when the engine and radiator are hot. Scalding engine coolant and steam may shoot out and cause serious injury. It may also damage the engine and cooling system.
- Turn off the engine and wait until it is cool. Even then, be very careful when removing the cap. Wrap a thick cloth around it and slowly turn it counterclockwise to the first stop. Step back while the pressure escapes.
- When you are sure all the pressure is gone, press down on the cap using the cloth, turn it, and remove it.
- Depending on the vehicle, the cooling fan may operate suddenly even when the ignition is off. Therefore, keep hands and tools away from the cooling fan even if the cooling fan is not operating to prevent injury to personnel or damage to the cooling fan. Always disconnect the negative battery cable when servicing the cooling fan or parts near the cooling fan.

ENGINE COOLANT PROTECTION INSPECTION [SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION)]

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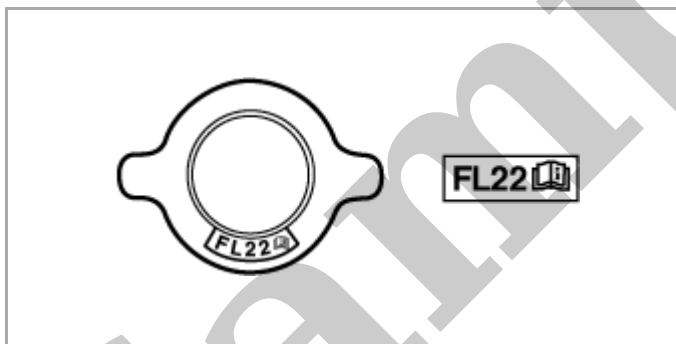
1. Measure the engine coolant temperature and specific gravity using a thermometer and a hydrometer.

Caution

- Use engine coolant at a concentration that meets the environmental conditions in which the vehicle is driven, otherwise engine damage could occur.
- The engine has aluminum parts and must be protected by an ethylene-glycol-based coolant to prevent corrosion and freezing.
- Do not use coolants containing Alcohol, Methanol, Borate or Silicate. These coolants could damage the cooling system.
- Use only soft (demineralized) water in the coolant mixture. Water that contains minerals will cut down on the coolant's effectiveness.
- Engine coolant damages paint. If engine coolant does get on a painted surface, rinse it off quickly.

Note

- If the "FL22" mark is shown on or near the cooling system cap, use Mazda Genuine FL22 engine coolant.



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- FL22 type engine coolant is shipped as a diluted solution. Use the solution as is when replacing coolant.

2. Determine the engine coolant protection level by referring to the graph shown in the figure.

- If the gauge needle drops, it may indicate water leakage. Repair or replace the applicable part.

Sample

Engine coolant protection	Volume percentage (%)		Gravity at 20 °C {68 °F}
	Water	Coolant	
Above -16 °C {3 °F}	65	35	1.057
Above -26 °C {-15 °F}	55	45	1.072
Above -40 °C {-40 °F}	45	55	1.086

7. Refill the engine coolant from the radiator filler neck until it is close to the top of the radiator filler neck.

8. Refill the engine coolant into the coolant reserve tank up to the F mark on the tank.

9. Install the cooling system cap.

Caution

- If the high engine coolant temperature warning light flashes, stop the engine to lower the engine coolant temperature and prevent overheating. Then, verify the malfunctioning part and repair or replace it.

10. Start the engine and warm up the engine by idling.

11. After the engine warms up, perform the following steps. At this time, be careful of the engine coolant temperature to prevent overheating.

Note

- If the accelerator pedal is depressed continuously for a specified time, the engine speed may decrease to the idle speed. This is due to the fuel cut control operation, which prevents overheating, and it does not indicate a malfunction.

(1) Run the engine at 2,500 rpm for 5 min.

(2) Maintain the engine speed at 3,000 rpm for 5 s, and then idle.

(3) Repeat Steps (1), (2) several times.

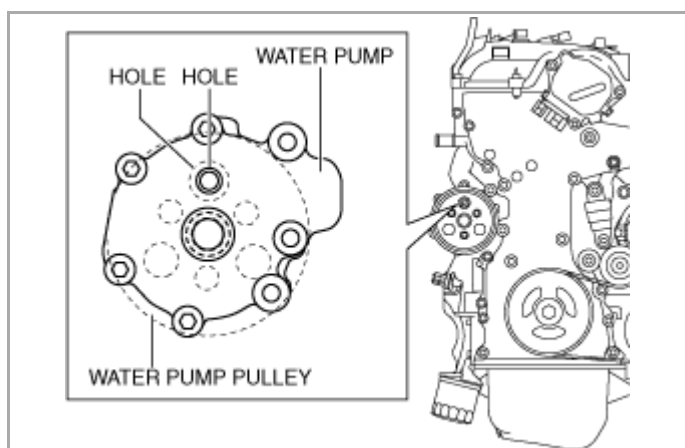
12. Stop the engine, and inspect the engine coolant level after the engine coolant temperature decreases. If it is low, repeat Steps 6–10.

13. Inspect for engine coolant leakage. (See **ENGINE COOLANT LEAKAGE INSPECTION [SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION)]**.)

14. Install the service hole cover.

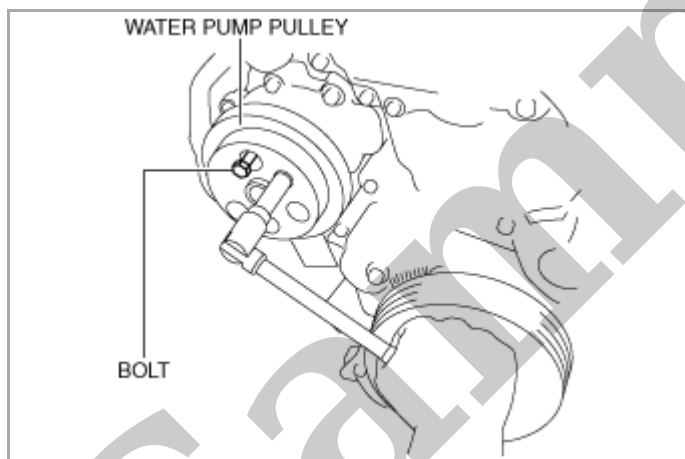
- Be careful not to damage the belt groove and surface of the water pump pulley when using tools, otherwise it will cause wear, breakage, abnormal noise of the drive belt (stretch belt), damage to the pulley, and rust.

1.Align the water pump pulley hole with the water pump hole as shown in the figure.



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2.Insert an appropriate bolt (length 70 mm {2.8 in}) into the water pump hole shown in the figure and lock the water pump pulley against rotation.



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3.Remove the water pump pulley.

4.Remove the bolt used for locking the water pump pulley against rotation.

Water Pump Component Removal Note

1.Place a container under the engine to collect the engine coolant remaining in the engine.

2.Slightly loosen the three water pump component bolts shown in the figure and collect the draining engine coolant into a container.