

## WATER PUMP REMOVAL/INSTALLATION [SKYACTIV-G 2.0, SKYACTIV-G 2.5]

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### Warning

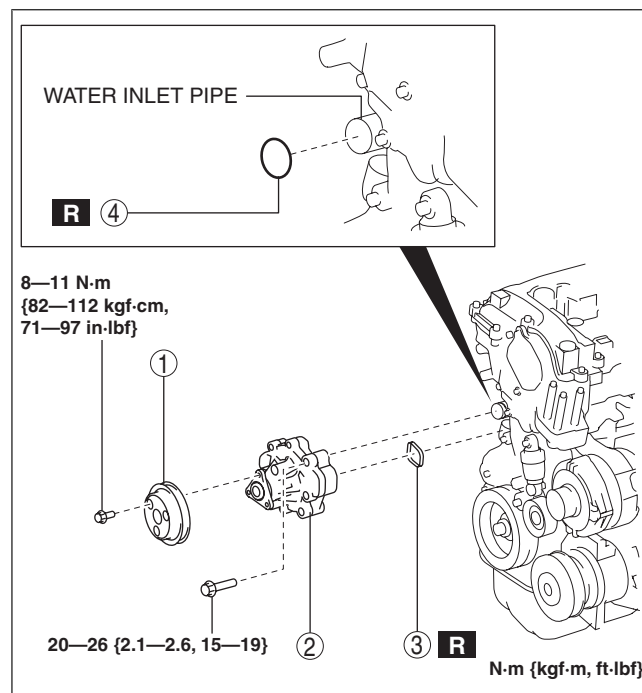
- **Never remove the cooling system cap or loosen the radiator drain plug while the engine is running, or when the engine and radiator are hot. Scalding engine coolant and steam may shoot out and cause serious injury. It may also damage the engine and cooling system.**
- **Turn off the engine and wait 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.**

### Note

- Do not disassemble the water pump because it is a precision unit.
- Remove/install the water pump pulley and water pump from the underside of the vehicle.

1. Disconnect the negative battery cable. (See NEGATIVE BATTERY CABLE DISCONNECTION/CONNECTION [SKYACTIV-G 2.0, SKYACTIV-G 2.5].) (See NEGATIVE BATTERY CABLE DISCONNECTION/CONNECTION [SKYACTIV-G 2.0, SKYACTIV-G 2.5 (WITHOUT i-stop)].)
2. Remove the front under cover No.2. (See FRONT UNDER COVER No.2 REMOVAL/INSTALLATION.)
3. Remove the splash shield (RH). (See SPLASH SHIELD REMOVAL/INSTALLATION.)
4. Drain the engine coolant. (See ENGINE COOLANT REPLACEMENT [SKYACTIV-G 2.0, SKYACTIV-G 2.5].)
5. Remove the water pump drive belt with the generator drive belt still installed and set it out of the way. (See DRIVE BELT REMOVAL/INSTALLATION [SKYACTIV-G 2.0, SKYACTIV-G 2.5].)
6. Remove in the order indicated in the table.
7. Install in the reverse order of removal.
8. Refill the engine coolant. (See ENGINE COOLANT REPLACEMENT [SKYACTIV-G 2.0, SKYACTIV-G 2.5].)
9. Inspect for engine coolant leakage. (See ENGINE COOLANT LEAKAGE INSPECTION [SKYACTIV-G 2.0, SKYACTIV-G 2.5].)

1	Water pump pulley (See Water Pump Pulley Removal Note.) (See Water Pump Pulley Installation Note.)
2	Water pump component (See Water Pump Component Removal Note.) (See Water Pump Component Installation Note.)
3	Gasket
4	O-ring (See O-ring Installation Note.)



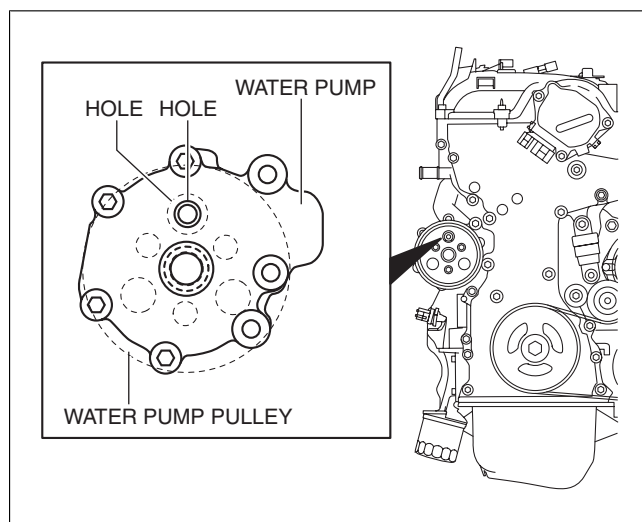
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### Water Pump Pulley Removal Note

#### Caution

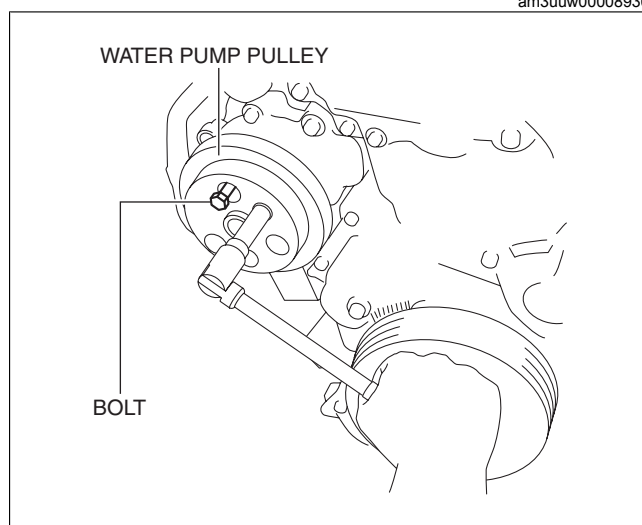
- **Be careful not to damage the belt groove and surface of the water pump pulley when using tools, otherwise it will cause wear, breakage, abnormal noise of the drive belt (stretch belt), damage to the pulley, and rust.**

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



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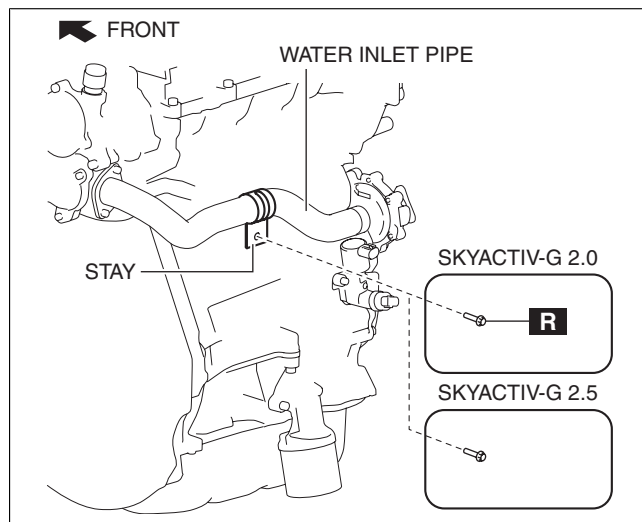
2. Insert an appropriate bolt (length 70 mm {2.8 in}) into the water pump hole shown in the figure and lock the water pump pulley against rotation.
3. Remove the bolt used for locking the water pump pulley against rotation.



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#### Water Pump Component Removal Note

1. Remove the water inlet pipe stay bolt.
2. Place a container under the engine to collect the engine coolant remaining in the engine.



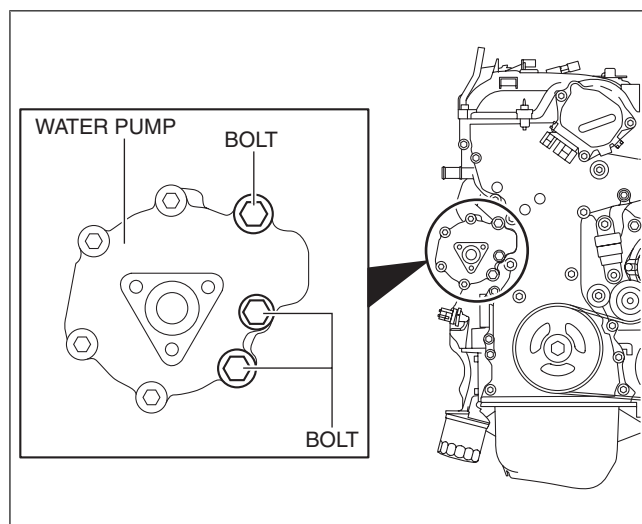
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3. Slightly loosen the three water pump component bolts shown in the figure and collect the draining engine coolant into a container.

**Caution**

- Do not remove the water pump component completely at this time because the remaining approx. 2 L or less of engine coolant flowing in the engine will drain out.

4. After the engine coolant stops draining, remove the water pump component.



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### O-ring Installation Note

**Caution**

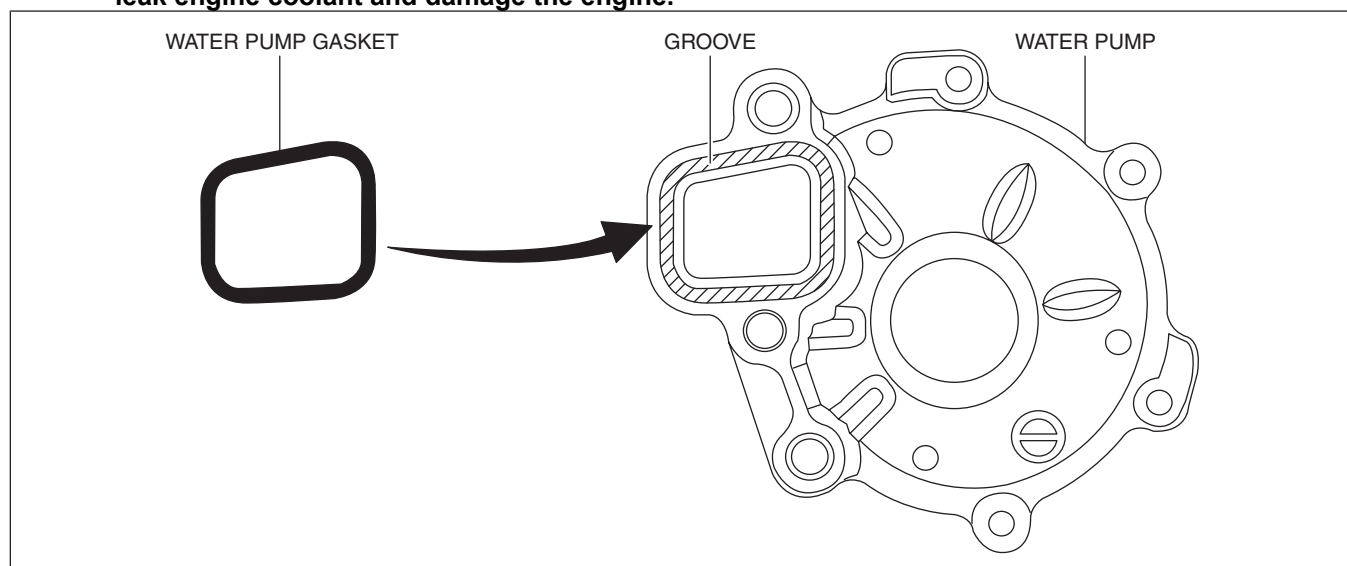
- Do not apply oil (such as engine oil, ATF) to the O-ring of the water inlet pipe. Otherwise, the O-ring could swell causing a seal malfunction.

1. Apply engine coolant to a new O-ring.
2. Install the O-ring to the water inlet pipe.

### Water Pump Component Installation Note

**Caution**

- Assemble the water pump gasket to the correct direction shown in the figure. Otherwise, it could leak engine coolant and damage the engine.



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- Do not apply oil (such as engine oil, ATF) to the water pump gasket. Otherwise, the gasket could swell causing a seal malfunction.

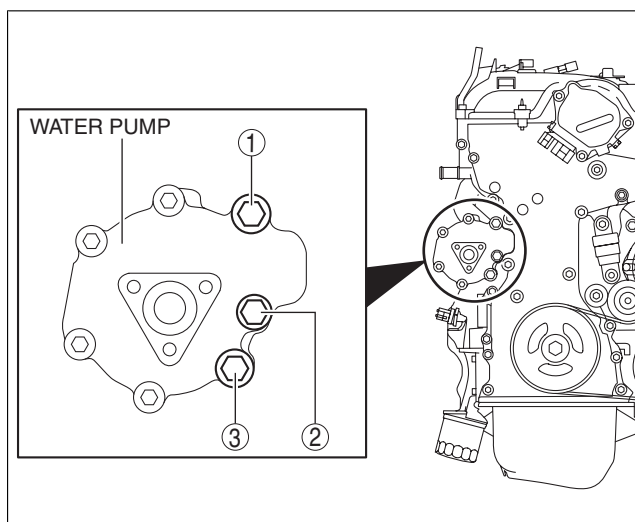
1. Insert a new water pump gasket into the water pump groove.
2. Install the water pump.

3. Tighten the bolts in the order shown in the figure.

#### Tightening torque

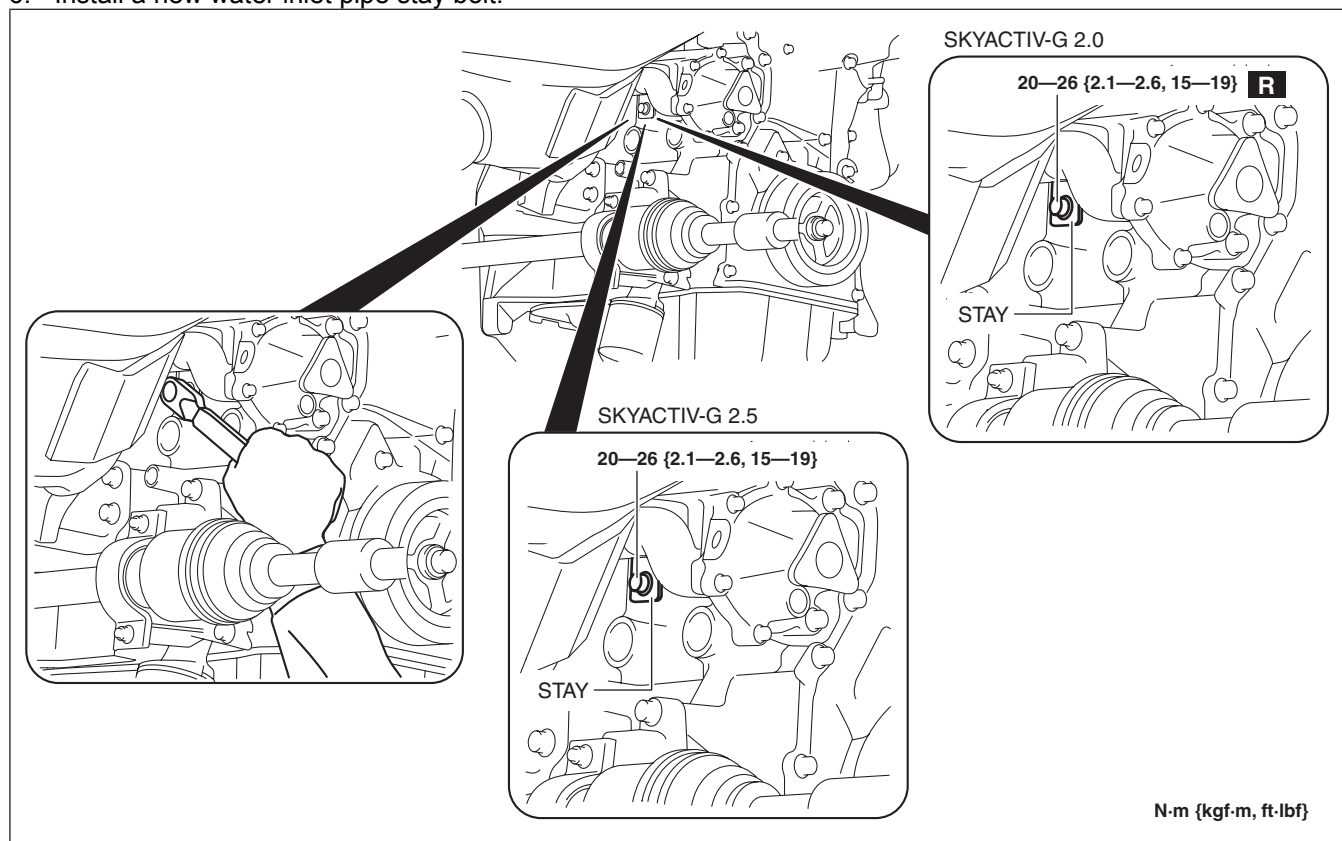
**20—26 N·m {2.1—2.6 kgf·m, 15—19 ft·lbf}**

4. Clean away the sealant adhering to the bolt hole on the cylinder block side of the water inlet pipe stay. (SKYACTIV-G 2.0)
5. Remove the engine oil solenoid valve to secure a sufficient space for installing the water inlet pipe stay bolt. (See ENGINE OIL SOLENOID VALVE REMOVAL/INSTALLATION [SKYACTIV-G 2.0, SKYACTIV-G 2.5].)



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6. Install a new water inlet pipe stay bolt.



N·m {kgf·m, ft·lbf}

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7. Install the engine oil solenoid valve. (See ENGINE OIL SOLENOID VALVE REMOVAL/INSTALLATION [SKYACTIV-G 2.0, SKYACTIV-G 2.5].)

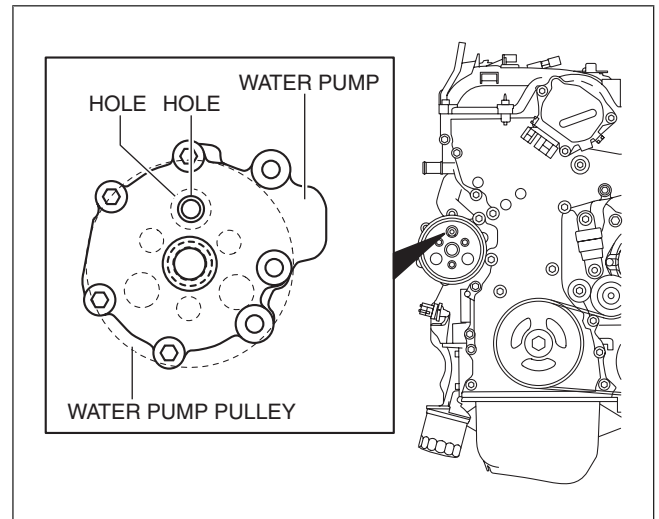
#### Water Pump Pulley Installation Note

##### Caution

- 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. Install the water pump pulley to the water pump and temporarily tighten the bolt

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



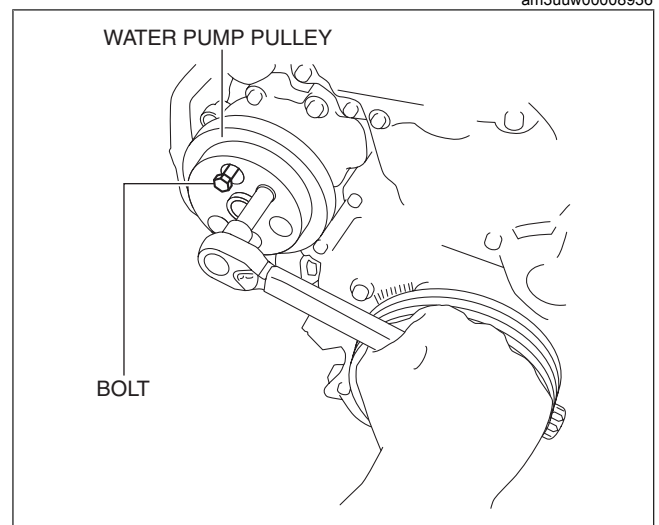
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3. Insert an appropriate bolt (length 70 mm {2.8 in}) into the water pump hole shown in the figure and lock the water pump pulley against rotation.
4. Completely tighten the water pump pulley bolt to the specified torque.

**Tightening torque**

**8—11 N·m {82—112 kgf·cm, 71—97 in·lbf}**

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



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