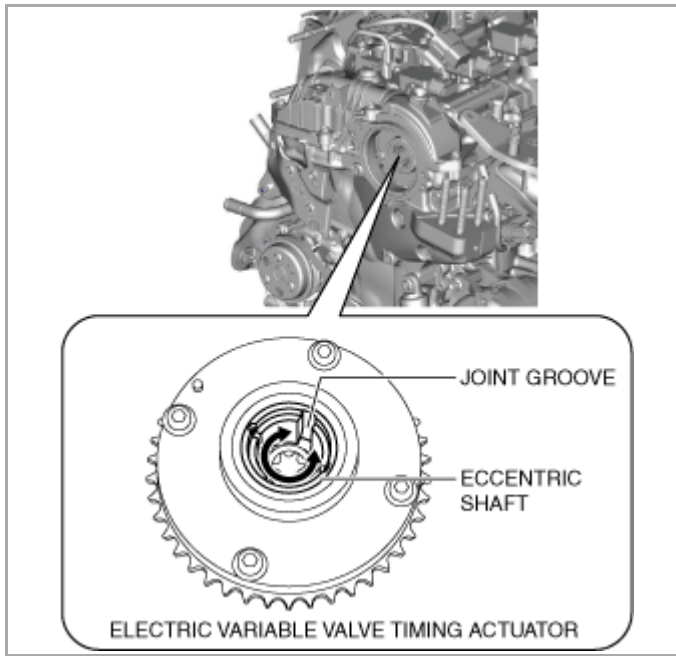


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2004 MAZDA Tribute OEM Service and Repair Workshop Manual

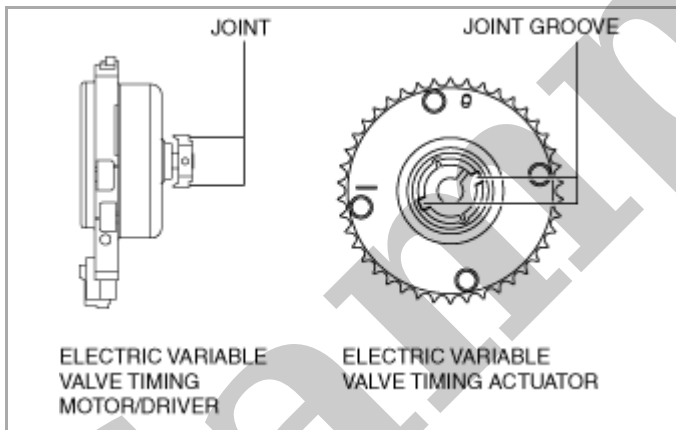
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- The electric variable valve timing motor/driver can be assembled with the joint groove of the eccentric shaft in any position, and it will not lead to vehicle damage or performance reduction.

(1) Before installation, rotate the joint on the end of the electric variable valve timing motor so that it is aligned to the joint groove on the electric variable valve timing actuator side.



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(2) Engage the joint on the end of the electric variable valve timing motor with the joint groove on the electric variable valve timing actuator side.

(3) Attach the seal surface.

(4) Tighten the electric variable valve timing motor/driver installation bolts.

Tightening torque

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

9.Remove the battery and battery tray. (See [BATTERY REMOVAL/INSTALLATION \[SKYACTIV-G 2.5T\].](#))

10.Remove the air inlet pipe. (See [INTAKE-AIR SYSTEM REMOVAL/INSTALLATION \[SKYACTIV-G 2.5T\].](#))

11.Remove the EGR cooler and EGR valve component. (See [EGR COOLER REMOVAL/INSTALLATION \[SKYACTIV-G 2.5T\].](#)) (See [EGR VALVE REMOVAL/INSTALLATION \[SKYACTIV-G 2.5T\].](#))

12.Remove the intake manifold. (See [INTAKE-AIR SYSTEM REMOVAL/INSTALLATION \[SKYACTIV-G 2.5T\].](#))

13.Remove the WU-TWC. (See [EXHAUST SYSTEM REMOVAL/INSTALLATION \[SKYACTIV-G 2.5T\].](#))

14.Remove the dynamic pressure turbo. (See [DYNAMIC PRESSURE TURBO REMOVAL/INSTALLATION \[SKYACTIV-G 2.5T\].](#))

15.Remove the exhaust manifold. (See [EXHAUST SYSTEM REMOVAL/INSTALLATION \[SKYACTIV-G 2.5T\].](#))

16.Remove the ignition coil/ion sensors. (See [IGNITION COIL/ION SENSOR REMOVAL/INSTALLATION \[SKYACTIV-G 2.5T\].](#))

17.Remove the spark plugs. (See [SPARK PLUG REMOVAL/INSTALLATION \[SKYACTIV-G 2.5T\].](#))

18.Remove the vacuum pump. (See [VACUUM PUMP REMOVAL/INSTALLATION \[SKYACTIV-G 2.5T\].](#))

19.Remove the high pressure fuel pump and rear housing. (See [HIGH PRESSURE FUEL PUMP REMOVAL/INSTALLATION \[SKYACTIV-G 2.5T\].](#))

20.Remove the drive belt. (See [DRIVE BELT REMOVAL/INSTALLATION \[SKYACTIV-G 2.5T\].](#))

21.Remove the oil pan. (See [OIL PAN REMOVAL/INSTALLATION \[SKYACTIV-G 2.5T\].](#))

22.Remove the timing chain and chain guide. (See [TIMING CHAIN REMOVAL/INSTALLATION \[SKYACTIV-G 2.5T\].](#))

23.Remove the OCV. (See [OIL CONTROL VALVE \(OCV\) REMOVAL/INSTALLATION \[SKYACTIV-G 2.5T\].](#))

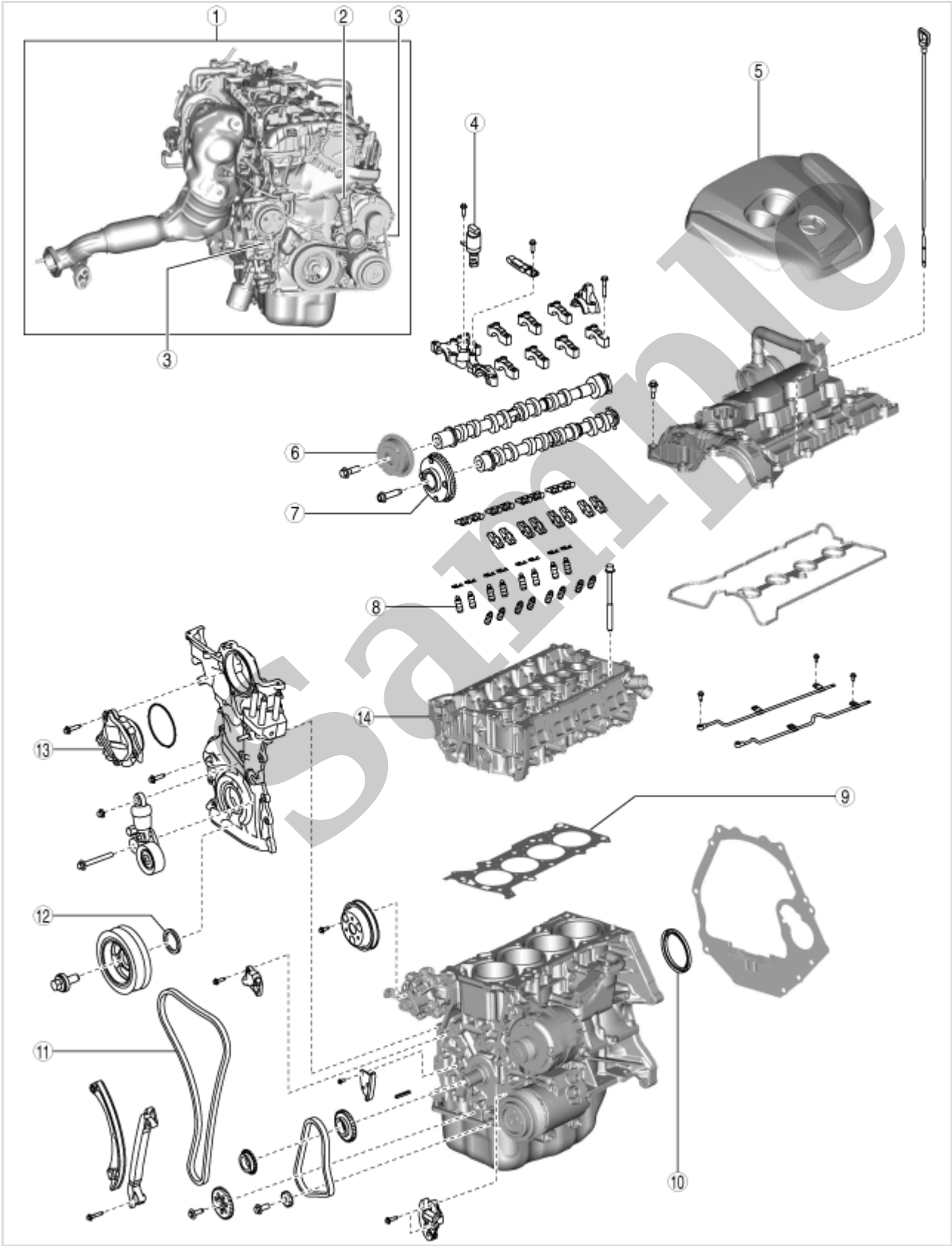
24.Disconnect the radiator hoses shown in the figure.

ENGINE LOCATION INDEX [SKYACTIV-G 2.5T]

SM2897182

id0110q880010

U.S.A., Canada and Israel



CYLINDER HEAD GASKET REPLACEMENT [SKYACTIV-G 2.5T]

SM2897187

id0110q880070

Replacement Part

O-ring Quantity: 2 Location of use: Water inlet pipe	Gasket Quantity: 1 Location of use: Flange	Cylinder head gasket Quantity: 1 Location of use: Cylinder head
O-ring Quantity: 1 Location of use: Water pipe component	-	-

Oil and Chemical Type

Engine oil Type: Recommended oil	Gear oil Type: SAE 90 gear oil or equivalent	Sealant Type: LOCTITE 962T, 518, 272 or equivalent
Silicone sealant Type: TB1217D or equivalent	Coolant Type: Recommended coolant	-

Warning

- A hot engine can cause severe burns. Turn off the engine and wait until it is cool before servicing.
- Fuel vapor is hazardous. It can very easily ignite, causing serious injury and damage. Always keep sparks and flames away from fuel.
- Highly pressurized fuel may spray out if the fuel line is cut. Due to the following dangers occurring with a fuel spray, always complete the “Fuel Line Safety Procedure” to prevent the fuel from spraying.
 - Fuel may cause irritation if it comes in contact with skin and eyes.
 - If fuel ignites and causes a fire, it may lead to serious injury or death, and damage to property and facilities.

Caution

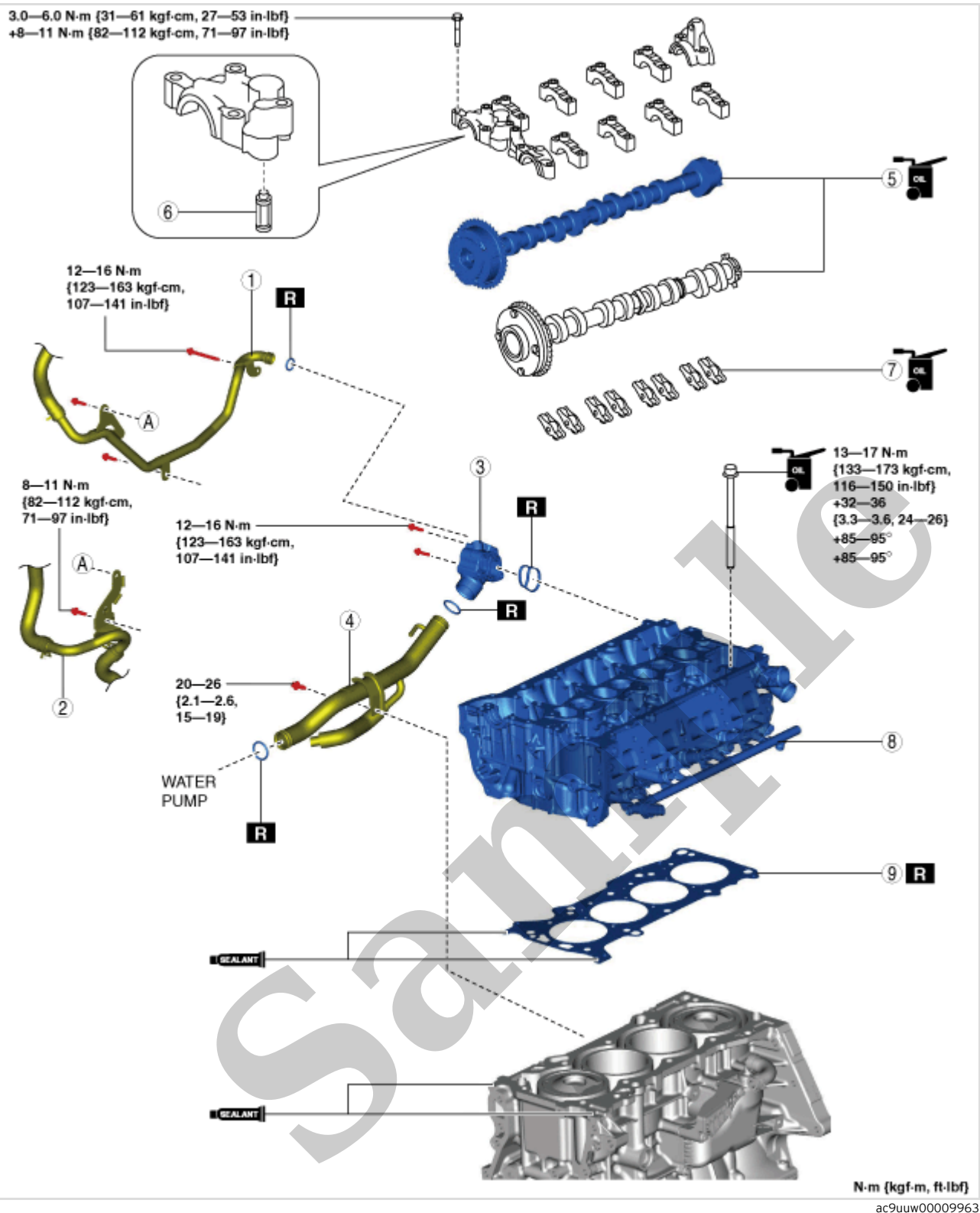
- If the camshaft is turned with the piston position at the top dead center while the timing chain is removed, the valve and piston will contact each other and it could cause engine damage. When turning the camshaft with the timing chain removed, turn the camshaft after the piston has rotated the crankshaft 90 degrees from the top dead center position.

1.Perform the [Fuel Line Safety Procedure] referring to [BEFORE SERVICE PRECAUTION]. (See **BEFORE SERVICE PRECAUTION [SKYACTIV-G 2.5T]**.)

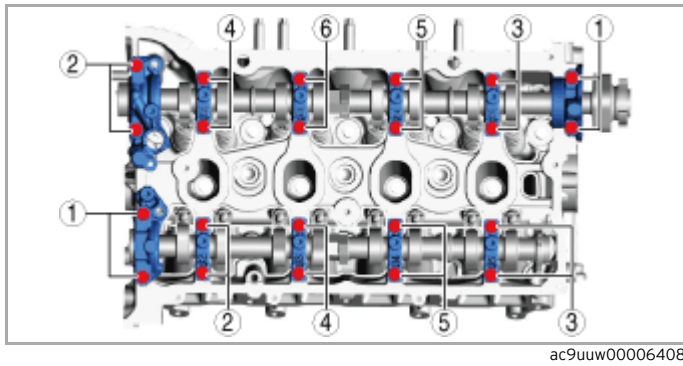
2.Disconnect the negative battery terminal. (See **NEGATIVE BATTERY TERMINAL DISCONNECTION/CONNECTION**.)

3.Remove the front under cover No.1 and No.2. (See **FRONT UNDER COVER No.1 REMOVAL/INSTALLATION**.) (See **FRONT UNDER COVER No.2 REMOVAL/INSTALLATION**.)

4.Remove the front splash shield. (See **SPLASH SHIELD REMOVAL/INSTALLATION**.)



1	Water pipe component (See Water Pipe Component Removal Note.) (See Water Pipe Component Installation Note.)
2	Oil cooler pipe component (See Oil Cooler Pipe Component Removal Note.) (See Oil Cooler Pipe Installation Note.)
3	Flange (See Flange and Water Inlet Pipe Removal Note.) (See Flange and Water Inlet Pipe Installation Note.)
4	Water inlet pipe (See Flange and Water Inlet Pipe Removal Note.) (See Flange and Water Inlet Pipe Installation Note.)



2.Remove the camshaft.

Rocker Arm Removal Note

1.Remove the rocker arms, clips and HLAs as a single unit. (only when removing rocker arms on exhaust side)

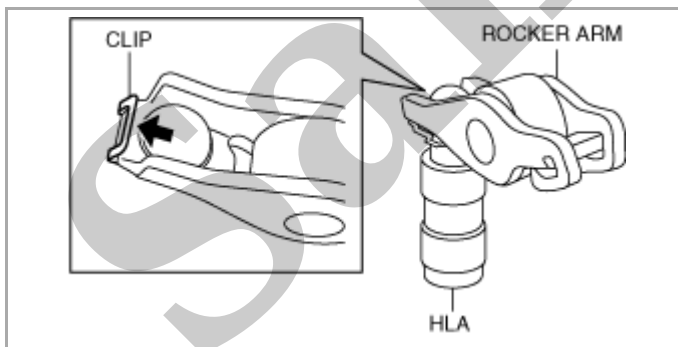
Note

- If the rocker arm is not replaced, it is not necessary to perform Step 2.

2.Press the clip in the direction of the arrow to remove it, and then remove the rocker arm. (only when removing rocker arms on exhaust side)

Note

- The HLA is also removed under this condition.



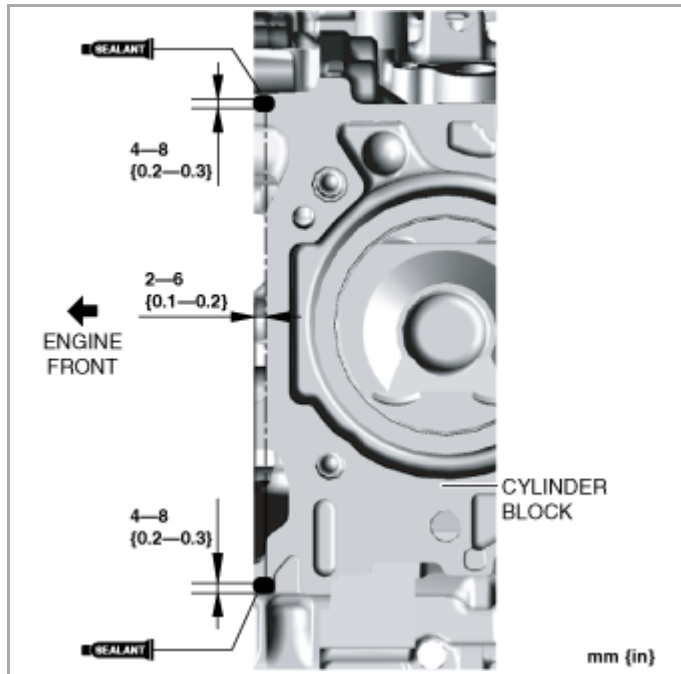
3.Keep the rocker arms in the order of removal to enable reassembly in their original positions.

Cylinder Head Removal Note

1.Temporarily install the oil pan to support the engine from under the vehicle.

Caution

- To prevent deformation of the oil pan, support the engine using the following methods.



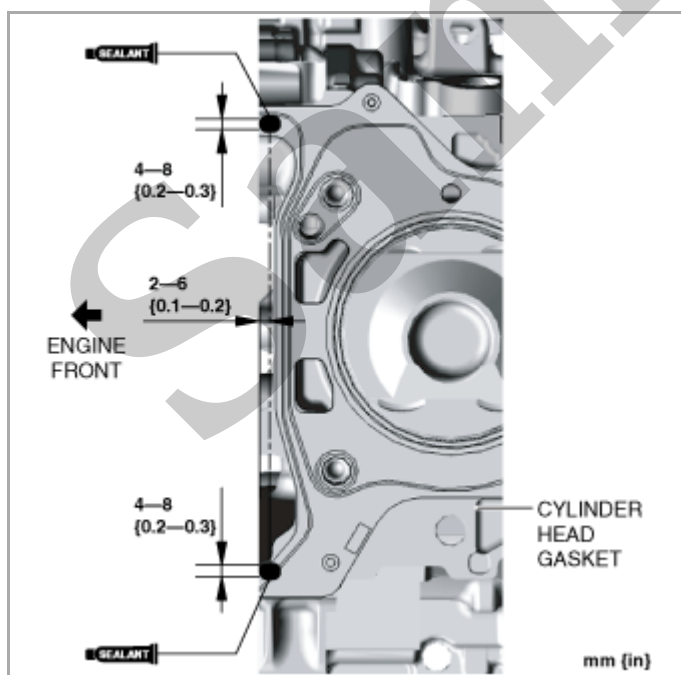
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Silicone sealant application diameter

5-10 mm {0.2-0.3 in}

4. Install a new cylinder head gasket to the cylinder block.

5. Apply silicone sealant (TB1217D or equivalent) to the areas shown in the figure.



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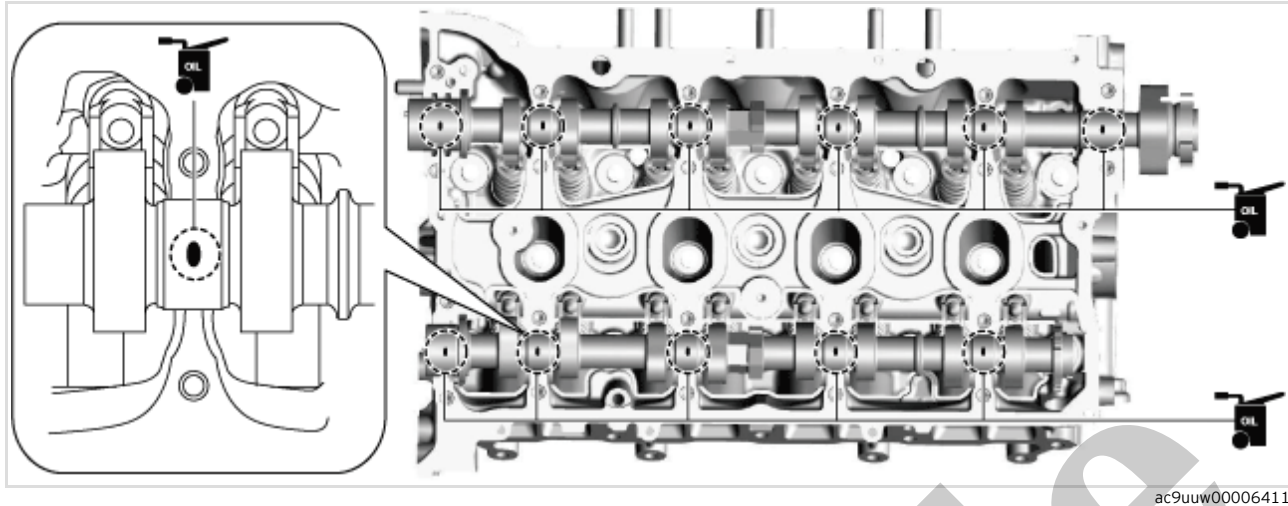
Silicone sealant application diameter

5-10 mm {0.2-0.3 in}

6. Set the cylinder head on the cylinder block.

- The timing mark of SKYACTIV-G 2.5T is not completely parallel with the upper surface of the cylinder head.

4. Apply SAE 90 gear oil or equivalent, or engine oil to the central area of each journal on the camshaft.



5. Apply SAE 90 gear oil or equivalent, or engine oil to the thrust surface of the front camshaft cap.

Caution

- Be careful not to let oil adhere to the engine front cover installation surface. If oil adheres to the engine front cover installation surface, a sealing malfunction may occur when the engine front cover is installed.
- If oil adheres to the engine front cover installation surface, remove any oil completely.

Note

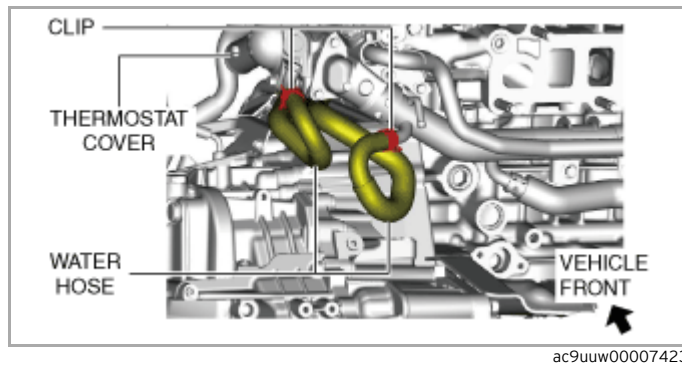
- If oil is applied to the front journal thrust surface of each camshaft, oil should not be applied to the front camshaft cap.

6. Apply sealant (LOCTITE 962T, 518, 272 or equivalent) to the rear camshaft cap installation area on the exhaust side or the rear camshaft caps on the exhaust side of the cylinder head.

Note

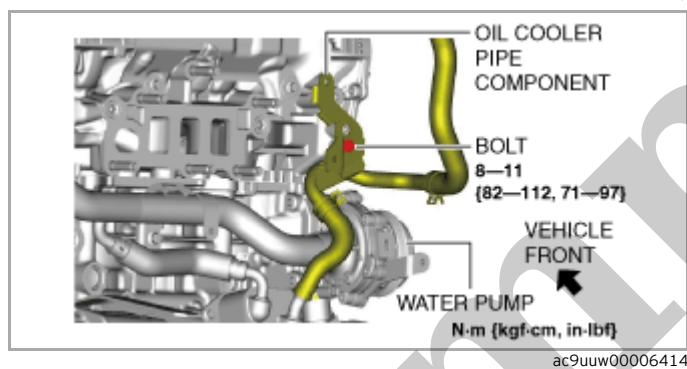
- To prevent engine oil leakage, apply sealant to the rear camshaft cap installation area on the exhaust side or the rear camshaft caps on the exhaust side of the cylinder head, and seal the journal.

6.Connect the hoses shown in the figure.



Oil Cooler Pipe Installation Note

1.Install the the oil cooler pipe component.



Water Pipe Component Installation Note

Caution

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

1.Apply engine coolant to the O-ring.

2.Install the O-ring to the water pipe component.

3.Insert the water pipe component into the flange being careful not to damage the O-ring.

4.Tighten the bolts shown in the figure.