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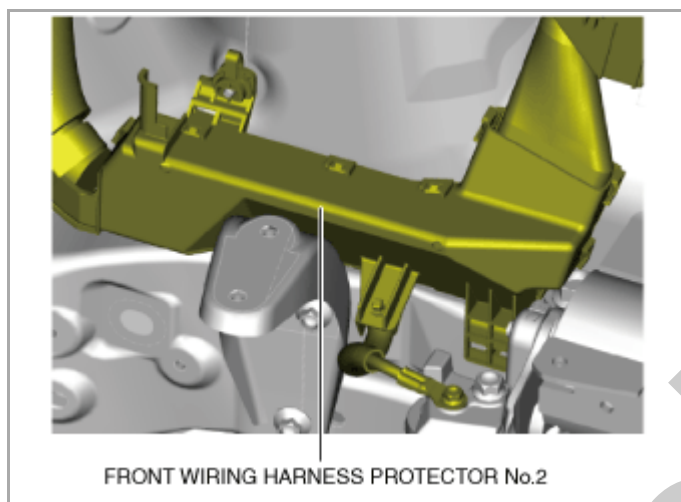
2006 MAZDA 3 MPS / MAZDASPEED3 OEM Service and Repair Workshop Manual

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3.Remove the engine lifter or garage jack.

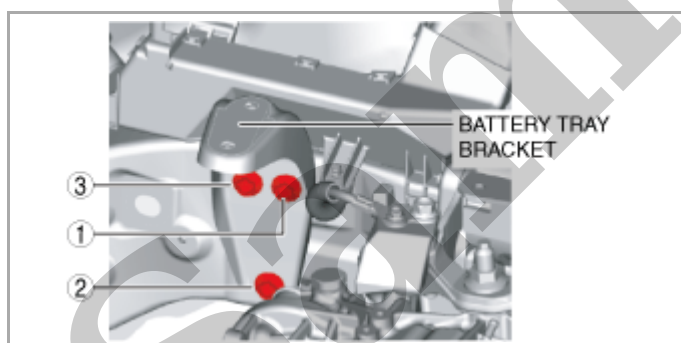
4.Install the front under cover No.2. (See **FRONT UNDER COVER No.2 REMOVAL/INSTALLATION.**)

5.Install the front wiring harness protector No.2. (See **FRONT WIRING HARNESS PROTECTOR REMOVAL/INSTALLATION.**)



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6.Tighten the battery tray bracket installation bolts in the order shown in the figure.



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Tightening torque

22–30 N·m {2.3–3.0 kgf·m, 17–22 ft·lbf}

- Fuel distributor (See [FUEL INJECTOR REMOVAL/INSTALLATION \[SKYACTIV-G 2.5 \(WITHOUT CYLINDER DEACTIVATION\)\]](#).)
- Fuel injector (See [FUEL INJECTOR REMOVAL/INSTALLATION \[SKYACTIV-G 2.5 \(WITHOUT CYLINDER DEACTIVATION\)\]](#).)
- Intake CMP sensor (See [CAMSHAFT POSITION \(CMP\) SENSOR REMOVAL/INSTALLATION \[SKYACTIV-G 2.5 \(WITHOUT CYLINDER DEACTIVATION\)\]](#).)

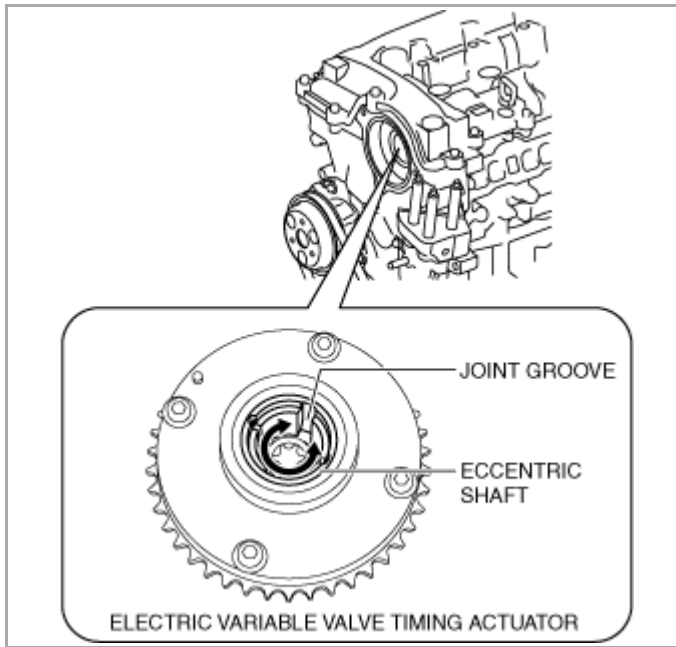
25. Install in the reverse order of removal.

26. Refill with the specified type and amount of the engine oil. (See [ENGINE OIL REPLACEMENT \[SKYACTIV-G 2.5 \(WITHOUT CYLINDER DEACTIVATION\)\]](#).)

27. Refill the engine coolant. (See [ENGINE COOLANT REPLACEMENT \[SKYACTIV-G 2.5 \(WITHOUT CYLINDER DEACTIVATION\)\]](#).)

28. Start the engine, and inspect and adjust the following:

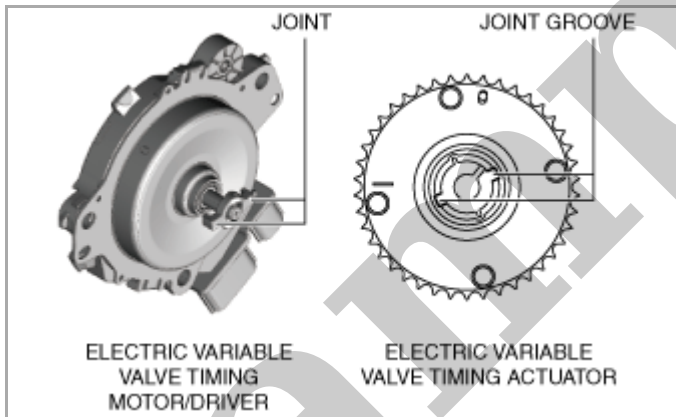
- Leakage of engine oil, engine coolant.
- Runout and contact of pulley and belt.
- Ignition timing, idle speed and idle mixture. (See [ENGINE TUNE-UP \[SKYACTIV-G 2.5 \(WITHOUT CYLINDER DEACTIVATION\)\]](#).)
- Compression pressure (See [COMPRESSION INSPECTION \[SKYACTIV-G 2.5 \(WITHOUT CYLINDER DEACTIVATION\)\]](#).)



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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}

ENGINE OIL REPLACEMENT [SKYACTIV-G 2.5T]

SM2897274

id0111q880040

Replacement Part

Gasket
Quantity: 1
Location of use: Oil pan drain plug

Oil and Chemical Type

Engine oil
Type: Recommended oil

Warning

- A hot engine can cause severe burns. Be careful when servicing the vehicle.
- A vehicle that is lifted but not securely supported on safety stands is dangerous. It can slip or fall, causing death or serious injury. Never work around or under a lifted vehicle if it is not securely supported on safety stands.
- Continuous exposure to USED engine oil has caused skin cancer in laboratory mice. Protect your skin by washing with soap and water immediately after working with engine oil.

Caution

- If engine oil is spilled on the exhaust system, wipe it off completely. If you fail to wipe the spilled engine oil, it will produce fumes because of the heat.
- If engine oil is added while engine oil drainage is insufficient, the engine oil amount will exceed the specification and the F mark on the dipstick. When draining the engine oil, warm up the engine (engine oil temperature: approx. 60 °C {140 °F} or more) and wait for 5 min or more before draining it.

Note

- The viscosity of the engine oil changes according to the engine oil temperature.
- Because it takes time for the engine oil to return to the oil pan from each engine part and the viscosity of the engine oil is high when the engine is cold, engine oil drainage becomes insufficient.
- The engine oil returns to the oil pan and a sufficient amount of engine oil can be drained by raising the engine oil temperature to approx. 60 °C {140 °F} or more and waiting for 5 min or more.
- Add engine oil until it reaches the F mark on the dipstick to handle oil dilution (viscosity reduction) and engine oil consumption (oil amount reduction).
- The engine oil reaches the F mark on the dipstick when the engine oil is drained according to the procedure and the specified amount of engine oil is added.

- 1.Position the vehicle on level ground.
- 2.Warm up the engine to allow the engine oil temperature to reach 60 °C {140 °F} or more.

ENGINE OIL LEVEL INSPECTION [SKYACTIV-G 2.5T]

SM2897275

id0111q880050

Warning

- A hot engine can cause severe burns. Be careful when servicing the vehicle.

Caution

- Because the engine oil amount may not be measured accurately, measure the engine oil amount after warming up the engine (engine oil temperature: approx. 60 °C {140 °F} or more) and waiting for 5 min or more.

Note

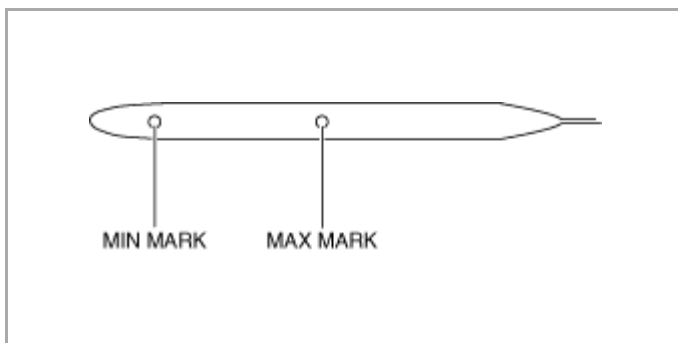
- The viscosity of the engine oil changes according to the engine oil temperature.
- The oil viscosity is high when the engine is cold, and because it takes time for the engine oil to return to the oil pan from each engine part, the engine oil amount cannot be measured accurately.
- The engine oil returns to the oil pan and the engine oil amount can be measured accurately by raising the engine oil temperature to approx. 60 °C {140 °F} or more and waiting for 5 min or more.
- Add engine oil until it reaches the MAX mark on the dipstick to handle oil dilution (viscosity reduction) and engine oil consumption (oil amount reduction).

- 1.Position the vehicle on level ground.
- 2.Warm up the engine to allow the engine oil temperature to reach 60 °C {140 °F} or more.
- 3.Stop the engine and wait for 5 min or more.
- 4.Remove the dipstick, wipe it cleanly, and reinstall it fully.

Note

- The engine oil amount indicated between the MIN and MAX marks on the dipstick is 1 L {1 USqt, 0.9 Imp qt}.

- 5.Remove the dipstick and verify that the oil level is between the MAX and MIN marks on the dipstick.



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- Add 1 L {1 USqt, 0.9 Imp qt} of engine oil when the oil level is at the MIN mark.

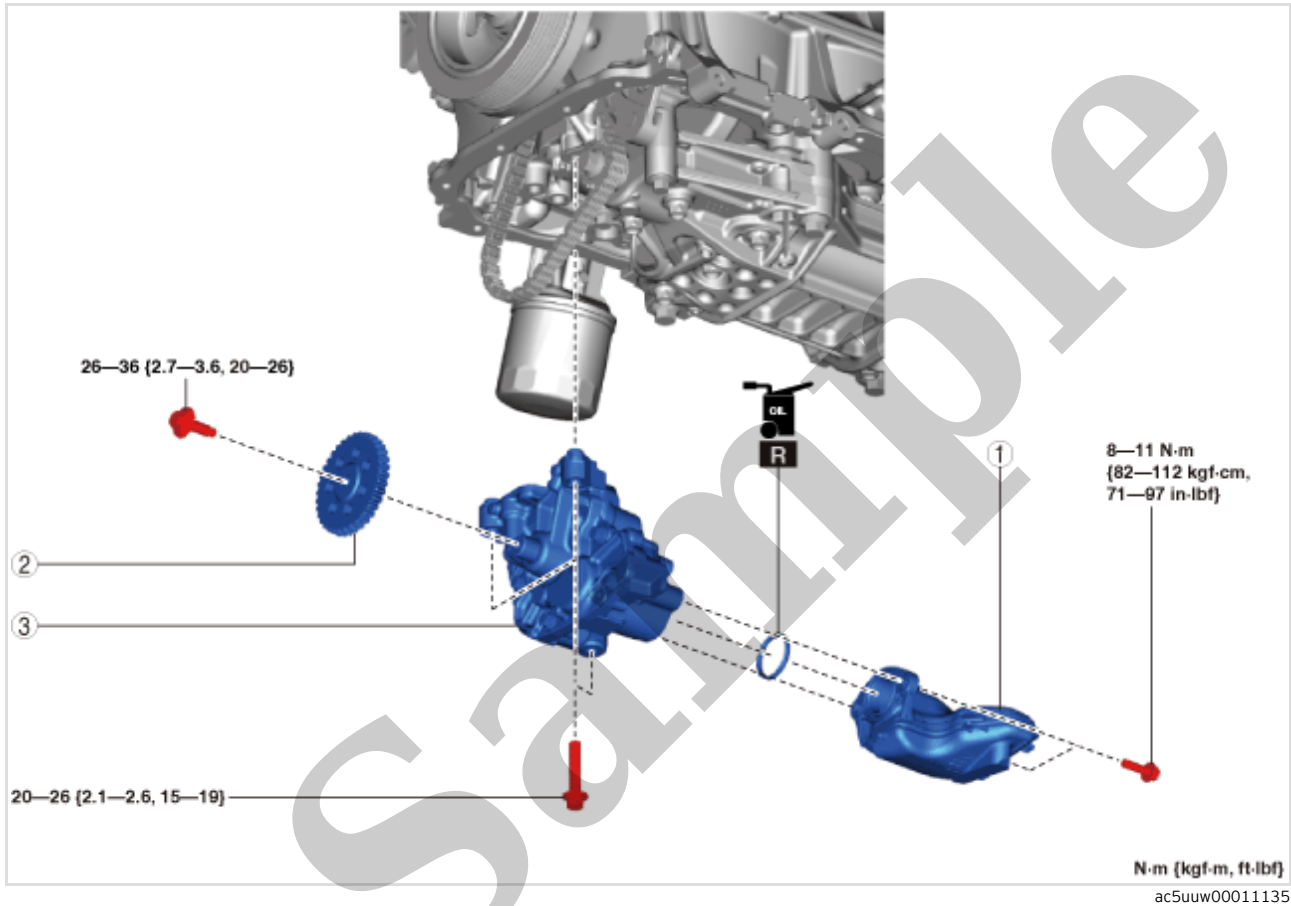
9.Refill with the specified type and amount of the engine oil. (See [ENGINE OIL REPLACEMENT \[SKYACTIV-G 2.5T\].](#))

10.Start the engine and confirm that there is no oil leakage.

- If there is oil leakage, repair or replace the applicable part.

11.Inspect the oil level. (See [ENGINE OIL LEVEL INSPECTION \[SKYACTIV-G 2.5T\].](#))

12.Inspect the oil pressure. (See [OIL PRESSURE INSPECTION \[SKYACTIV-G 2.5T\].](#))

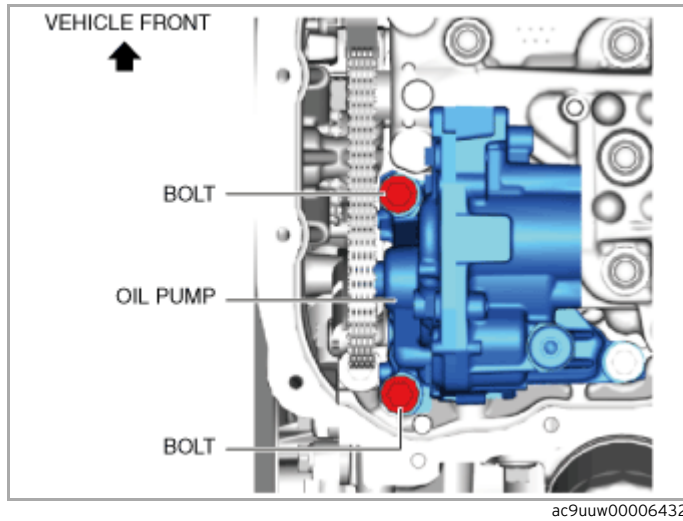


1	Oil strainer
2	Oil pump driven sprocket (See Oil Pump Driven Sprocket Removal Note.) (See Oil Pump Driven Sprocket Installation Note.)
3	Oil pump (See Oil Pump Installation Note.)

Oil Pump Driven Sprocket Removal Note

1.Mark the following parts as shown in the figure.

- Oil pump driven sprocket
- Oil pump chain
- Balancer unit sprocket



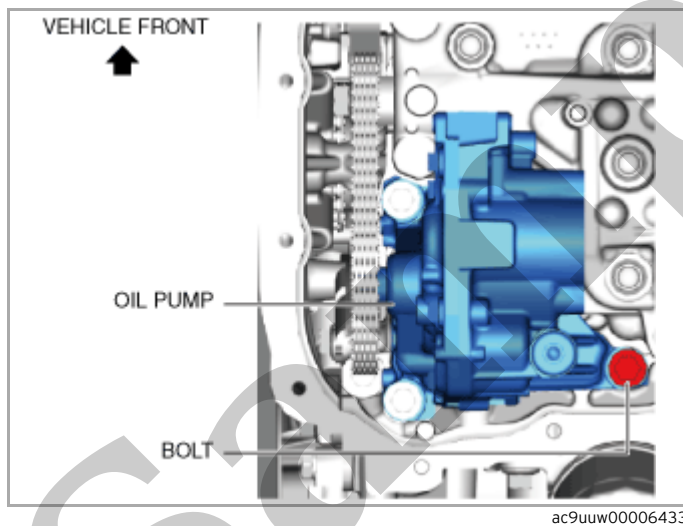
Note

- The tightening order for the two bolts is optional.

Tightening torque

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

(3) Finally, tighten the bolt shown in the figure to the specified torque.

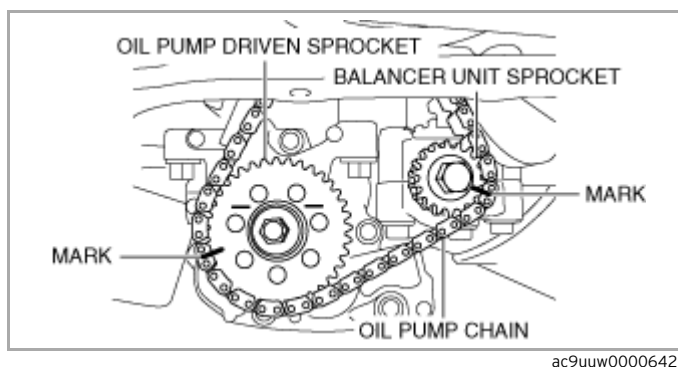


Tightening torque

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

Oil Pump Driven Sprocket Installation Note

1. Align the marks on each sprocket and the oil pump chain.



OIL FILTER REPLACEMENT [SKYACTIV-G 2.5T]

SM2897277

id0111q880070

Oil and Chemical Type

Engine oil

Type: Recommended oil

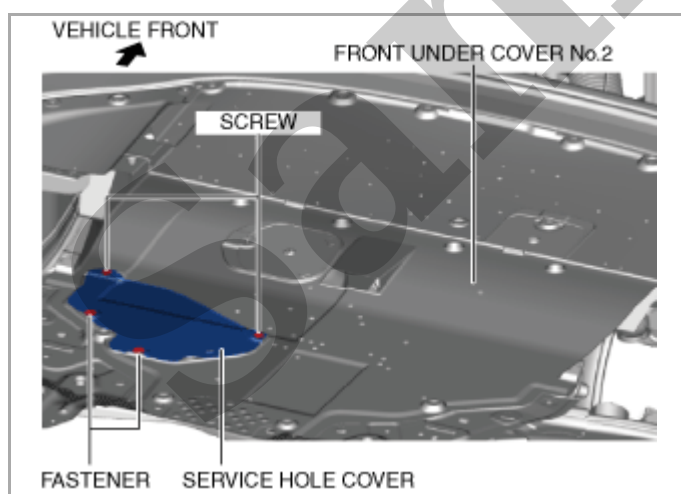
Warning

- Hot engines and engine oil can cause severe burns. Turn off the engine and wait until it and the engine oil have cooled.
- A vehicle that is lifted but not securely supported on safety stands is dangerous. It can slip or fall, causing death or serious injury. Never work around or under a lifted vehicle if it is not securely supported on safety stands.
- Continuous exposure to USED engine oil has caused skin cancer in laboratory mice. Protect your skin by washing with soap and water immediately after working with engine oil.

Caution

- If engine oil is spilled on the exhaust system, wipe it off completely. If you fail to wipe the spilled engine oil, it will produce fumes because of the heat.

1.Remove the service hole cover (installed to front under cover No.2) used to remove the oil filter.



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2.Remove the oil filter using the commercially available, cup-type oil filter wrench (66.5 mm {2.62 in} diameter, 14 sided).

8.Use a clean cloth to wipe off the mounting surface on the cylinder block and the oil cooler.

9.Install in the reverse order of the removal.

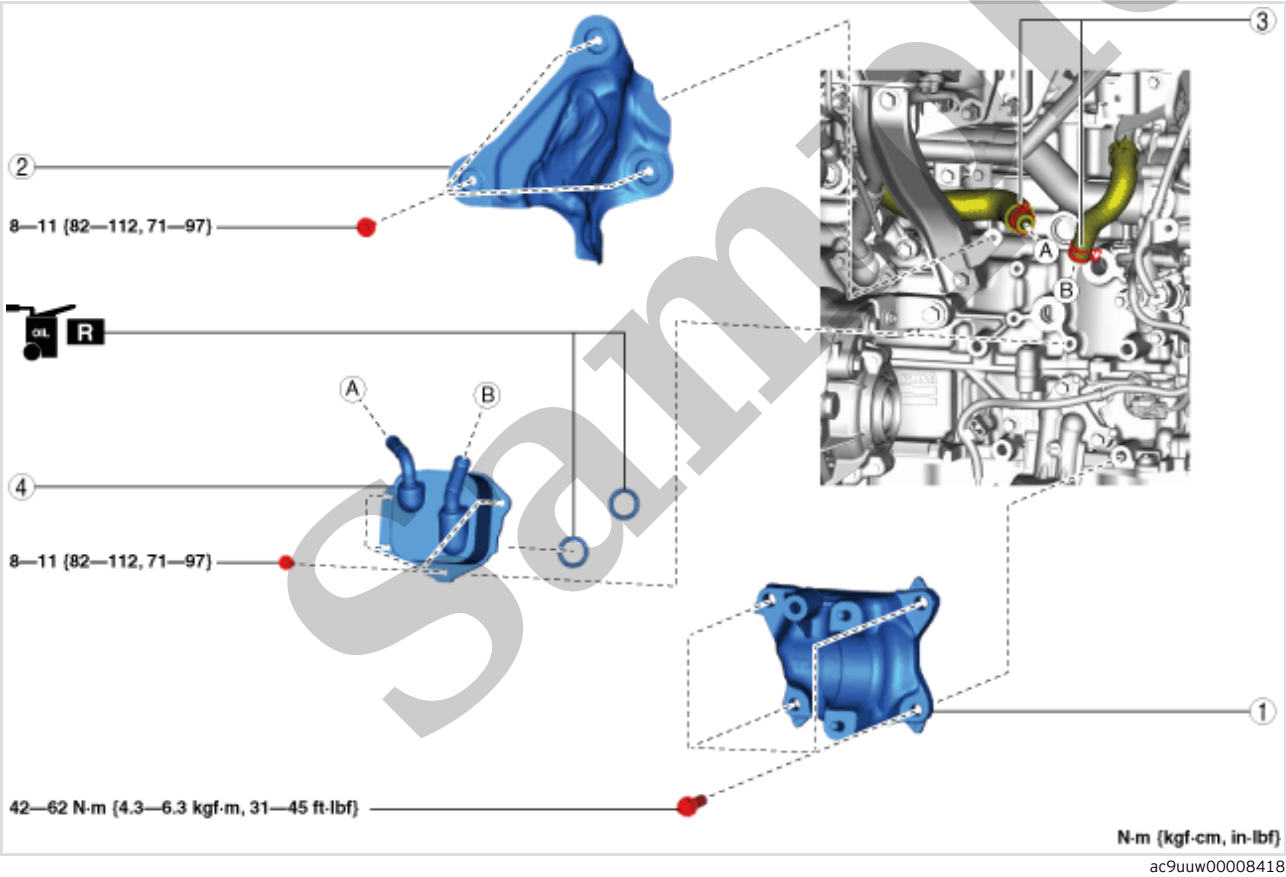
10.Refill the engine coolant. (See [ENGINE COOLANT REPLACEMENT \[SKYACTIV-G 2.5T\].](#))

11.Start the engine and confirm that there is no oil leakage.

- If there is oil leakage, repair or replace the applicable part.

12.Inspect the oil level. (See [ENGINE OIL LEVEL INSPECTION \[SKYACTIV-G 2.5T\].](#))

13.Inspect for engine coolant leakage. (See [ENGINE COOLANT LEAKAGE INSPECTION \[SKYACTIV-G 2.5T\].](#))



1	Bracket No.1 (front drive shaft (RH)) (See Bracket No.1 Installation Note.)
2	Oil pipe protector
3	Water hose
4	Oil cooler (See Oil Cooler Installation Note.)

Oil Cooler Installation Note