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2004 MAZDA 6/Atenza Wagon OEM Service and Repair Workshop Manual

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- If, when turning the crankshaft, there is a slapping noise from the hydraulic variable valve timing actuator each time before the cam reaches its maximum lift, it means that the actuator is not secured. Replace the hydraulic variable valve timing actuator. (See [ELECTRIC VARIABLE VALVE TIMING ACTUATOR, HYDRAULIC VARIABLE VALVE TIMING ACTUATOR REMOVAL/INSTALLATION \[SKYACTIV-G 2.5T\].](#))

6. Install in the reverse order of removal.

8.Remove the vacuum pump. (Only when hydraulic variable valve timing actuator is removed.) (See **VACUUM PUMP REMOVAL/INSTALLATION [SKYACTIV-G 2.5T].**)

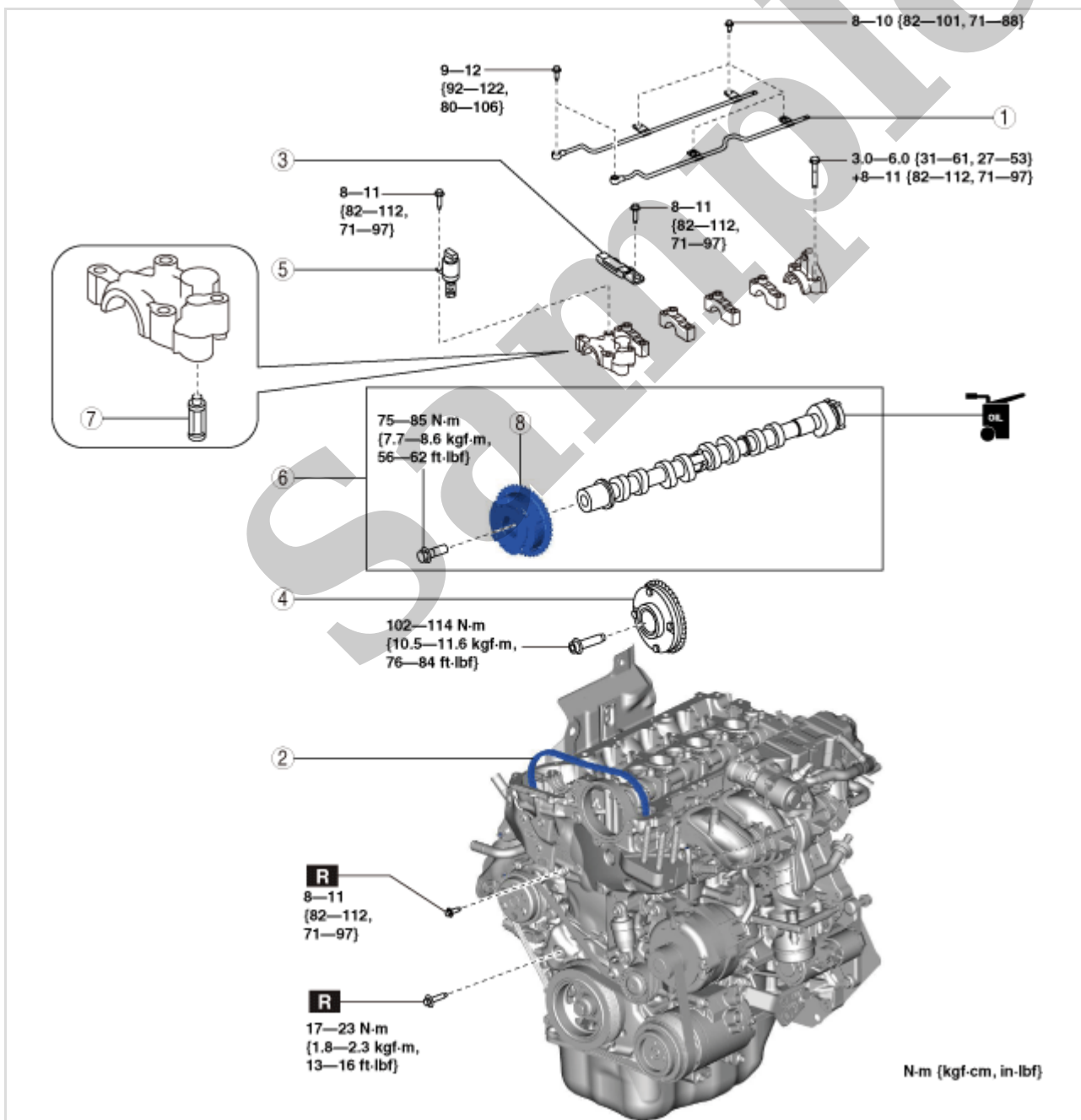
9.Remove the high pressure fuel pump and rear housing. (Only when hydraulic variable valve timing actuator is removed.) (See **HIGH PRESSURE FUEL PUMP REMOVAL/INSTALLATION [SKYACTIV-G 2.5T].**)

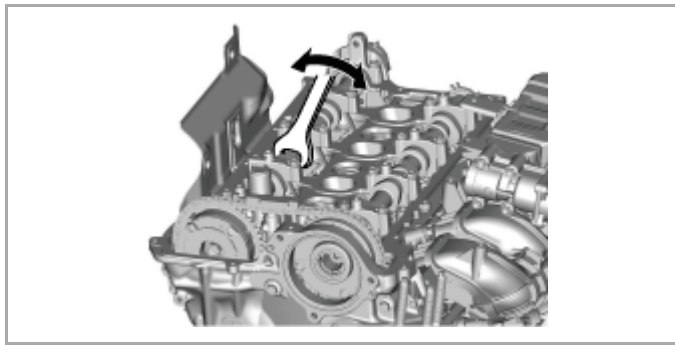
10.Remove in the order indicated in the table.

11.Install in the reverse order of removal.

12.Start the engine and inspect the following:

- Ignition timing, idle speed and idle mixture. (See **ENGINE TUNE-UP [SKYACTIV-G 2.5T].**)

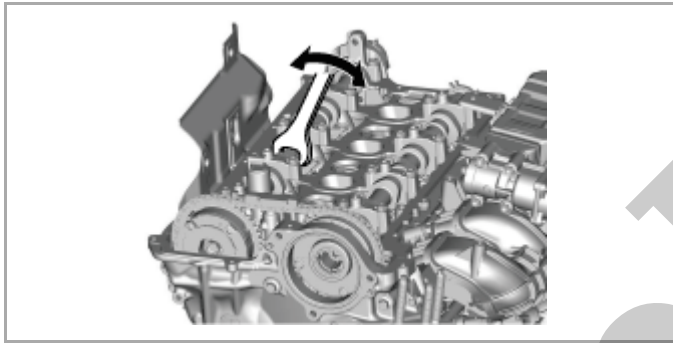




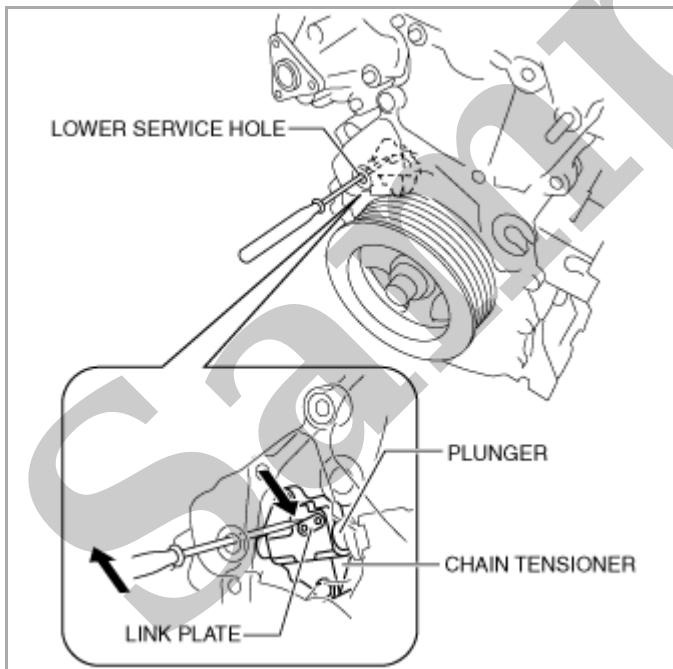
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(4) Insert a precision screwdriver into the lower service hole.

(5) While moving the exhaust camshaft back and forth in the direction of the arrow using a wrench on the cast hexagon, press down the link plate of the timing chain tensioner using a precision screwdriver and release the plunger lock.



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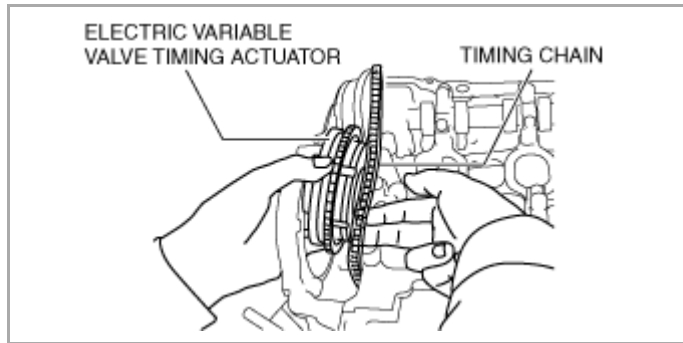


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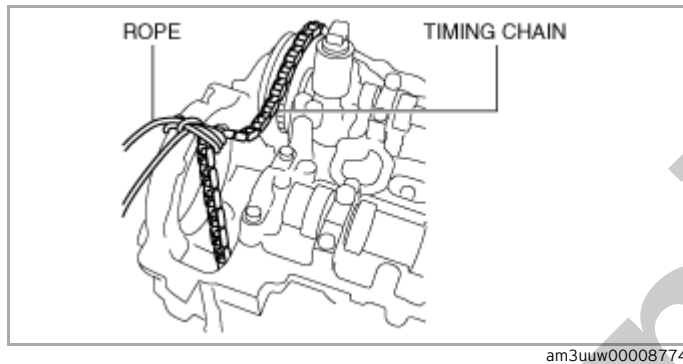
Note

- When moving the exhaust camshaft back and forth, the timing chain pushes the plunger in the chain tensioner making it easier to operate the link plate.

(6) With the plunger lock released, rotate the exhaust camshaft clockwise until the timing chain loosens.



5. Return the timing chain to the exhaust camshaft sprocket, and pull the timing chain up and suspend it using a rope as shown in the figure.



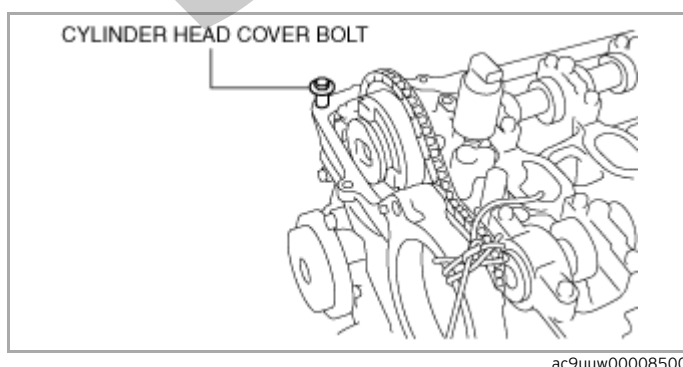
Hydraulic Variable Valve Timing Actuator and Exhaust Camshaft Component Removal Note

Caution

- Keep the timing chain pulled up during and after the work in which it has been set aside from the sprocket. If the chain falls down, it may disengage from the sprocket on the crankshaft side and deviate, leading to valve timing deviation.
- After servicing, always verify the valve timing.

1. Leave the timing chain as it is, which was suspended after electric variable valve timing actuator removal.

2. Temporarily install the cylinder head cover bolt to the position shown in the figure to use it for suspending the timing chain.



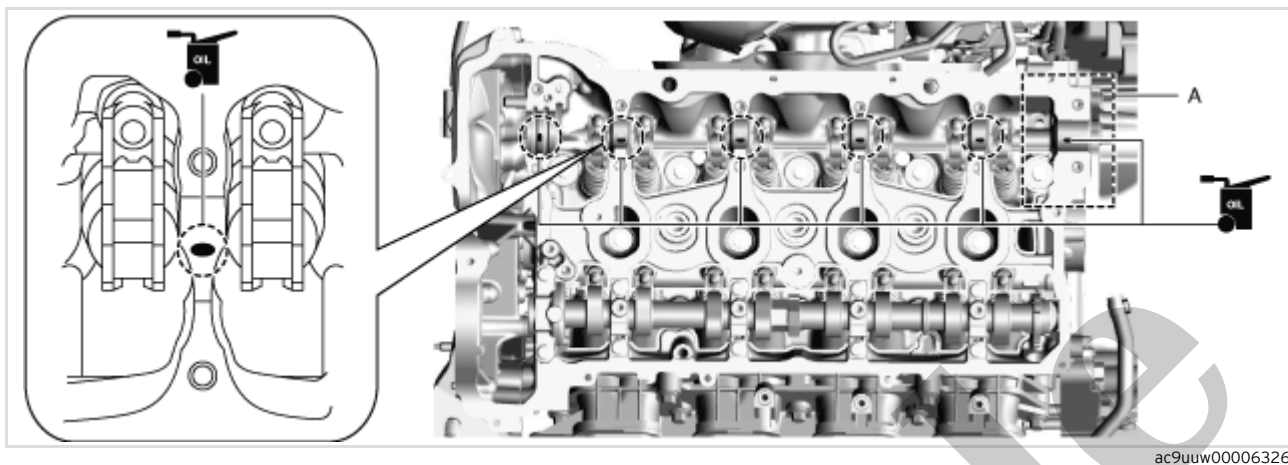
3. Loosen the exhaust-side camshaft cap bolts in two or three passes in the order shown in the figure, and remove the camshaft caps.

Hydraulic Variable Valve Timing Actuator and Exhaust Camshaft Component Installation Note

1. Apply SAE 90 gear oil or equivalent, or engine oil to the positions shown in the figure.

Caution

- Apply 0.05 ml {0.05 cc, 0.003 in³} or less of oil to area A in the figure.



2. Apply SAE 90 gear oil or equivalent, or engine oil to the following locations of the exhaust camshaft.

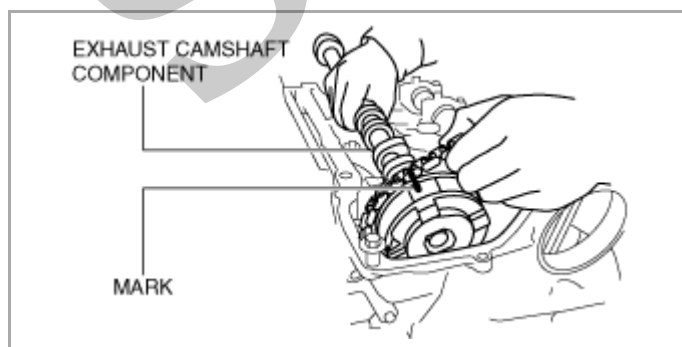
- Thrust surface of front journal (both surfaces front and back)

Note

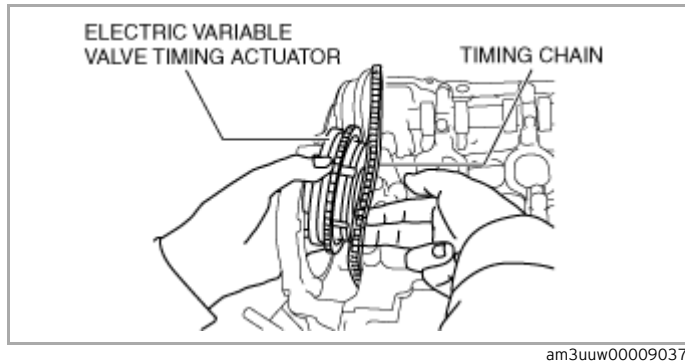
- If oil is applied to the front camshaft cap, oil should not be applied to the thrust surface of the front journal.

3. Remove the rope suspending the timing chain on the exhaust side.

4. While aligning the mark on the timing chain placed during removal with the one on the hydraulic variable valve timing actuator, place the exhaust camshaft component on the cylinder head.



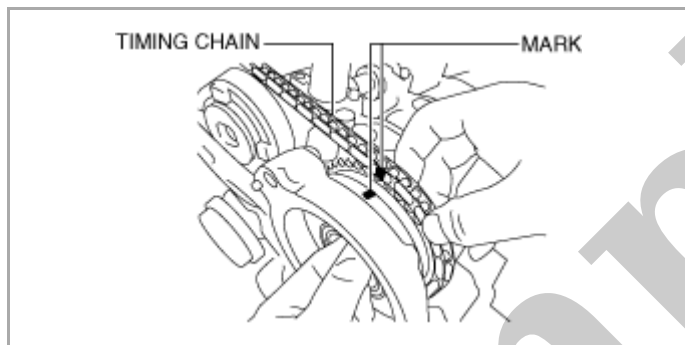
5. Apply SAE 90 gear oil or equivalent, or engine oil to the central area of each journal on the exhaust camshaft.



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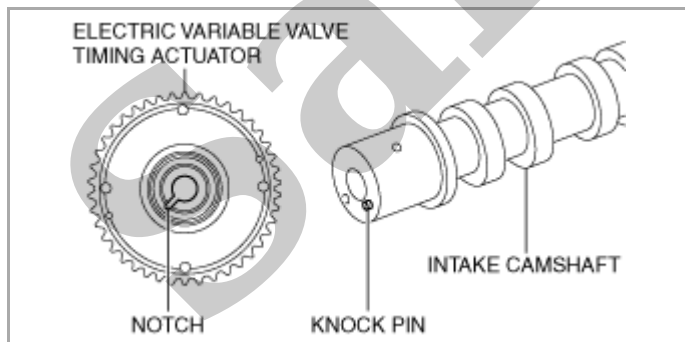
4. Return the timing chain to the exhaust camshaft sprocket.

5. While aligning the mark on the timing chain placed during removal with the one on the electric variable valve timing actuator, engage the chain with the sprocket.



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6. Align the knock pin on the end of the intake camshaft with the notch on the actuator side, then assemble the actuator.

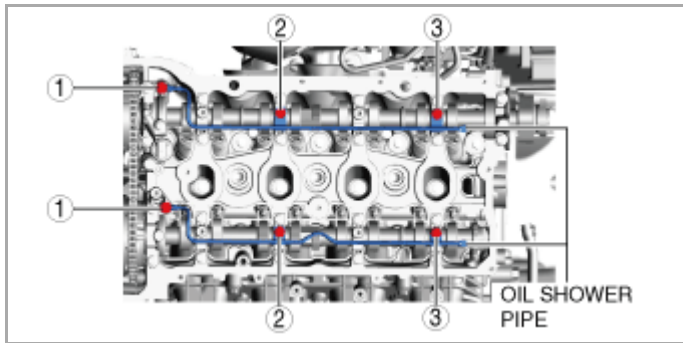


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Note

- Adjust the knock pin with the notch while adjusting the knock pin position by rotating the camshaft.

7. Hold the intake camshaft using a wrench on the cast hexagon, and tighten the electric variable valve timing actuator installation bolt.

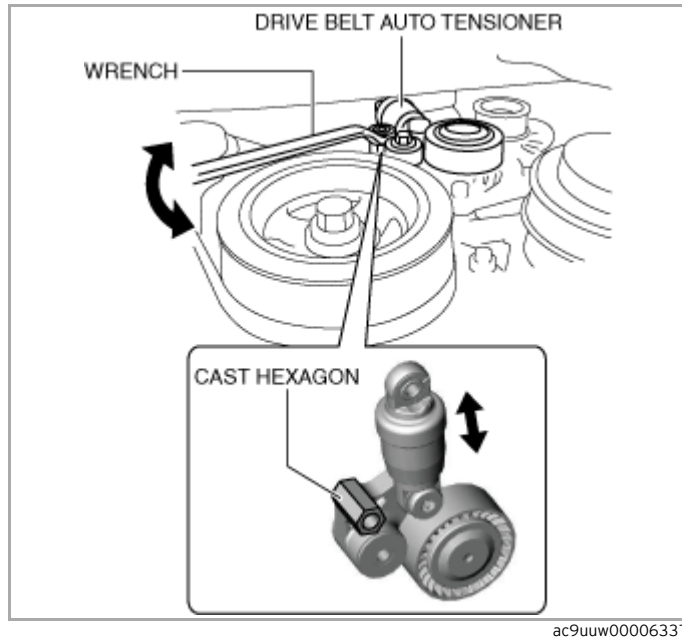


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Tightening torque

Installation position	Tightening torque
1	9–12 N·m {92–122 kgf·cm, 80–106 in·lbf}
2, 3	8–10 N·m {82–101 kgf·cm, 71–88 in·lbf}

Sample



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Note

- By moving the drive belt auto tensioner up and down full-stroke three times, the piston inside the tensioner moves to bleed the air.

COMPRESSION INSPECTION [SKYACTIV-G 2.5T]

SM2897183

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Warning

- Hot engines and oil can cause severe burns. Be careful not to burn yourself during removal/installation of each component.
- 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.

1. Verify that the battery is fully charged. (See **BATTERY INSPECTION**.)

- Recharge it if necessary. (See **BATTERY RECHARGING**.)

2. Connect the M-MDS to the DLC-2.

3. Warm up the engine to the normal operating temperature.

4. Display the following PIDs using the M-MDS data monitor function. (See **PCM INSPECTION [SKYACTIV-G 2.5T]**.)

- RPM (engine speed)

5. Perform "Fuel Line Safety Procedures". (See **BEFORE SERVICE PRECAUTION [SKYACTIV-G 2.5T]**.)

6. Remove the following parts.

- (1) Plug hole plate. (See **PLUG HOLE PLATE REMOVAL/INSTALLATION [SKYACTIV-G 2.5T]**.)
- (2) Ignition coil/ion sensors. (See **IGNITION COIL/ION SENSOR REMOVAL/INSTALLATION [SKYACTIV-G 2.5T]**.)
- (3) Spark plugs. (See **SPARK PLUG REMOVAL/INSTALLATION [SKYACTIV-G 2.5T]**.)
- (4) Fuel pump relay
- (5) Fuel injector relay

7. Measure the compression pressure using the following procedure.

- (1) Install the compression gauge to the spark plug hole.
- (2) Fully depress the accelerator pedal.

Note